

LAND ECONOMICS

a quarterly journal of
PLANNING, HOUSING & PUBLIC UTILITIES

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Regional Planning Legislation in Underdeveloped Areas†

By CHARLES ABRAMS*

IN DRAWING legislation for a regional plan the legal draftsman is met at once by the perplexing question of what precisely is a "region." The dictionaries afford him only a vague clue. The Oxford dictionary defines a "region" as:

- a more or less defined portion of the earth's surface, especially as distinguished by certain natural features, climatic conditions, a special fauna or flora or the like.
- an area, space, or place, of more or less definite extent or character.
- an administrative division of a city or district.¹

"Regionalism" an equally perplexing term, is defined as:

- a tendency to, or practice of, regional

systems or methods; localism on a regional basis.

Neither the dictionary definitions of region and regionalism nor any of the definitions proffered by the professional planners are clear enough for the legislative draftsman to graft into a statute without courting trouble. It is easier to find a common ground in emotional aspirations than in precise meanings. The terms are used freely also in business, government and the social sciences but here too they have such diverse applications that it is impossible to find a common basis of understanding.

Efforts to agree on a precise definition are apt to draw fire from many directions. "The failure to discriminate between the many distinct factors that underlie the emergence and persistence of regions," says Louis Wirth, "is a serious fault of present day scholarship and research. It has failed to distinguish between genuine and spurious regions. Areas of homogeneity have been mistakenly represented as areas of integration. It has been mistakenly assumed that physical regions also inevitably constitute economic, cultural, and political

† This article is, in essence, a condensation of a paper delivered at the Seminar on Regional Planning of sixteen southeastern nations in Asia held in Tokyo, Japan under the auspices of the United Nations in July 1958.

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¹ A fourth definition of "region," applied in 1704 to the "regions of the air," might be ignored as obsolete except for the recent concern over the rockets indiscriminately circling in orbit which seem to be stirring demands for some sort of atmospheric regional planning to demarcate the emerging spheres of stratospheric influence.

regions . . . Regionalism as a dogma can easily degenerate into a cult."²

In France after the revolution "regionalism" was shaped into a tool of centralization so that the intellectual life which was still flourishing in the provinces at the time of the revolution was almost completely stifled thereafter. Under the new regionalism France soon became a suburb of Paris and an arm of its Chamber of Deputies. Continuing protests ultimately won some decentralization and local self-government. The histories of Spain, Italy and Germany presented other types of problems and conflicts that grew out of the regional idea.³

What seems clear is that regionalism is no pill that kills all the bugs and solves all ills. Nor is regionalization a universal solvent with similar effects under all circumstances and on all bodies politic. Regionalization may be a sound mechanism for deconcentrating unworkable central power into smaller functioning units; a means of unravelling and rationalizing a complex web of conflicting local jurisdictions and making them work more efficiently; a public device for harnessing nature's power and transmitting its benefits to the people of a region; a means of controlling the healthier growth of an area and stimulating its development through governmental processes. Regionalization may embrace a cohesive area with a sense of its own identification which must be respected, or it may be a pretext by a central government for winning political hegemony over healthily-functioning local bodies and levelling their wholesome diversities into a rigid mold.

The volumes written on regionalism cast little light on regionalization as a

policy in planning, particularly as it applies to the underdeveloped areas of the world. Books on the Tennessee Valley Authority are only fractionally relevant since the political, social, economic and administrative patterns were vastly different when they were undertaken in the United States from what they are today in Asia or Africa. The regional restrictions that were imposed in the more developed areas were laid upon an already operating system of investment which was better posed to protect itself against excessive regulation. A tried and functioning system of protective law and tradition functioned to check confiscatory exercises. Nor did sporadic socialization challenge the main body of private investment or initiative.

Developing countries, however, are in the process of formulating their financial, social and legal processes. While this offers an advantage in that regional plans can be laid down without the opposition of established jurisdictions or vested interests, burdensome regional restrictions or political and economic novelties may discourage the very inflow of investment they need for survival or the very local initiative they need for growth.

At least 9 different variants can be culled from the unanalyzed body of regional examples. These are plans of: (1) a definable jurisdictional unit such as a county, state or province, (2) a larger metropolitan complex like the London or New York regions, (3) a group of municipalities trying to resolve their common problems in a region through the creation of a new integrating unit, (4) two or more states, cities or other bodies delegating some powers over common problems (water, port, sewage, parks, etc.) to a public corporation formed specially for these purposes, (5) a section of a country whose physiographical considerations (such as the harnessing

² Merrill Jensen, *Regionalism in America* (Madison, Wisconsin: University of Wisconsin Press, 1951), pp. 392, 393.

³ See Hedwig Hintze, *Cyclopedia of Social Sciences*, Volume XIII, p. 208.

of a river's power) make it desirable to plan the whole area affected by the project, (6) an international waterway or other form of power or transport which makes it desirable to effect a compact between two or more countries governing its use and benefits, (7) a new city whose building will necessarily affect the surrounding area and which therefore makes it desirable to control the surrounding area in the interests of a more rational future growth, (8) an existing city with undeveloped land pulsating at its periphery, whose future development may affect the city's economy or thwart its expansion, (9) a number of rural areas concerned with problems of flood control, irrigation, water, transportation or other services. Assuming that the regional plan is one of these, the next problem is to define the powers governing the planning and its implementation. Here again we find that not all regional planning bodies have powers or even the same powers.

The Functional Categories of Regional Planning

Existing regional plans would appear to be identifiable functionally as advisory, restrictive, coordinative, developmental, or a combination of these.

Advisory regional planning bodies exist in the developed countries and are either official or unofficial bodies. Not having plenary powers, their function is largely to provide inspirational guideposts, on the notion that what should be will be. "The Regional Plan of New York and its Environs," for example, is sponsored by an unofficial privately-supported organization trying to guide some 400 municipalities in three states by illustrating where it thinks the expressways, shops, residences, industries, transit, parks, parkway systems, and civic centers should be located. A regional plan association of

citizens helps finance it, keeps the plan current and propagandizes it. The association and its plan have had some influence upon the ultimate improvements, much the same as a good book on reform in government has helped bring about the sound recommendations it proffers. Unofficial advisory bodies may also serve a political purpose (where there are powerful opposing interests) by bringing the issues into the open, or "running interference" for cautious officials unwilling to carry the ball. Citizens associations are an important fibre in the political structure of countries like England and the United States and a strong force in their democratic development.

In the United States governors of adjoining states within a putative region seem more inclined to advocate the need for inter-state planning when there is little hope of achieving it while they continue to ignore intra-state regional planning which can be accomplished by the act of the single state legislature.

In England and Wales regional plan committees of various kinds were organized for joint planning schemes but, though they were official, they were largely advisory in character. The committees were content to present ideal goals rather than operative programs. West Middlesex (suburban), mid-Surrey (semi-rural), Manchester (industrial), and the Thames Valley (amenity preservation) are examples. After World War II however, Great Britain found it had to put law behind its plans. It not only enforced preparation of plans by cities but it also controlled land development and industrial settlement through a central planning and housing ministry.

Legislation setting up an official advisory regional planning body should meet little political resistance since it sacrifices no rights or privileges. Its

effectiveness hinges on the prestige or eloquence of the spokesmen and the magnetic drawing power of the plans. Advisory plans do not often leave the shelf for translation into actual improvements.

A *restrictive* plan exercises the compulsive powers to prevent unwise industrial settlement, deforestation, de-ruralization or misplaced developments of one sort or another. The restrictive plan presumes that, if you lay down what cannot be done, you help bring about what should be done. Zoning, permission to develop or locate industries, and subdivision controls are some of the tools available through the police power. The tax power may also be manipulated as a restrictive device by imposing heavier levies in some areas than in others.

A restrictive plan raises a host of questions which have to be answered for each country—will the restrictions discourage private investment? Can they be made to stick against the numerous local pressures and interests of politicians, industry, the worker, the farmer, the squatter? Should compensation be awarded to those who have been unduly deprived of rights? Can the restrictions be self-operating or should they be coupled with more positive and more comprehensive programs?

In general, restrictive plans may be partially effective but should be part of a broader effort in which restriction is one but not the only device.

A *coordinative* plan attempts to rationalize the projects of a series of affected jurisdictions. It is the tool of cities in developed areas whose expansion has made cooperation essential. But whether coordinative plans win the consents of the constituent governmental units usually depends on the extent of the pressures and the criticality of the needs. If, as in Toronto, Canada, there is not enough

water or there is a critical drainage problem, coordinating of functions will more readily be agreed to. But if, as in Copenhagen and Fredericksburg, (Denmark) or New York City or Westchester (New York), coordination may unfavorably affect a taxpayer's purse, pride, or politics, there is less chance of winning an accord. Coordination requires consent and consent usually follows out of self-interest, fear, crisis and—in rare cases—a concern *pro bono publico*.

Such coordinative regional plans should include provisions for: creation of the requisite local planning commissions; creation of a regional planning commission composed of representatives from the local communities; definition of the local and regional commission's function with regard to proposed developments; local and regional surveys; direction to the public officials to furnish the Commission with such information as it may require; adoption of the master plans of the localities and of the region and the procedures for certifying the plan to the localities involved for their action; promotion of the plans through education, consultation, advice, etc.; and definitions of the legal status of the plan after adoption, e.g., that no development shall thereafter occur in violation of the plan.

The most important (and potentially the most constructive) regional plan is one in which there is an actual improvement of major proportions which brings inevitable consequence in its wake. The harnessing of the Volta River in Ghana is expected not only to turn bauxite into aluminum but alter the lives and ways of a rural-tribal society; disenthral its economy from its major dependency upon cocoa; inspire secondary industries, shipping and trade; improve health; spur a migration from depressed areas to cities which in turn would spur the need for housing, utilities and amenities. It

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may also have political, social and economic consequences including an alteration of the relationships between government, private investment, local agencies and people as well as have other impacts too uncertain to venture.

Harnessing a river in East Pakistan would reduce flood damage, maintain and extend the area of cropped lands, swell their yields, provide navigation, wider markets, improved fishing and multiple other blessings.

Control of the Jordan in the Middle East would not only affect the physical patterns of the two countries concerned as well as their rural and urban economies, but might ultimately have a beneficial impact on the political relationships between them if not on their neighbors as well.

Development of India's Damodar Valley through an organization similar in some respects to the Tennessee Valley Authority was aimed at preventing the costly floods of the Damodar River and latterly to speed its fuller development with irrigation, navigation and electric power projects.

National Development and Regional Planning

Regional development functions best when part of a broad national developmental program. While the nature of the agencies may vary from country to country⁴ and region to region, the agencies for implementing national and regional coordination of development schemes may generally include:

1. A central organization of experts concerned with the economic planning of the country which would evaluate the nation's human and material resources and the best means of utilizing them in the national welfare. Its work would embrace proper

allocation of public expenditure for development of agriculture (colonization, forestry, fisheries, etc.); village aid and rural development; water and power development; transport and communications; housing; industry; training and education; health; social welfare; labor and employment.

2. Provincial or regional agencies operating within clearly defined areas of responsibility for the purpose of fulfilling central responsibility under the plan on a less centralized basis.

3. Statutory authorities or public corporations charged with fulfilling specifically designated programs of development.

4. Such lesser district administrative agencies as may be needed to help speed some of the developments at the local levels in accordance with a national plan.

5. Local self-governing or village agencies working in cooperation with the national development units.

6. Such financing agencies and mechanisms as may be needed to help finance the development. (Under certain circumstances however, financing might be vested in the regional development agency.)

The best legislation can be snarled in the execution by a dearth of trained personnel to man the agencies; conflict of authority; insulation of agencies in the field; failure to delegate authority; absence of funds. Responsibility should be clearly carved out by statute or order and cabinet officers whose duties touch upon development only incidentally should hold down their intervention to a practical minimum. In some cases ministries may have to be reorganized to vest greater authority for a development in the single cabinet office directly responsible so as to avoid unnecessary duplications and approvals. Programs which concern local development (particularly rural development) should afford the highest sense of local participation and cooperation. Where local or village government does not exist, its genesis should not be aborted but encouraged.

⁴For the plan of such agencies in Pakistan, see *First Five Year Plan: 1955-60*, Government of Pakistan Planning Board.

Localized Regional Development

While regional development should generally follow a national plan, it may also occur in a compact area and affect only that area and its immediate surroundings. The building of a harbor where ships were previously unloaded by dhingies may spur an area's trade and increase its influence as an urban center. The harbor's building sparks consequences—an influx of workers to build the harbor and maintain it; a market, trade and office center; a wider road to convey the imports; streets, entertainment and recreation; schools and parks; a place for storage, processing and manufacture; an expanded need for police, clerks and official officers; projects for housing the workers, civil servants, small traders and larger investors. The agricultural belt nearby will be affected as the demand for its products is widened and some of its land shifts to urban use. The opportunities and outlook of its rural residents will be altered as the old village well gives way to the urban plaza.

The building of a throughway may affect an area extensively rather than intensively. Workers may travel longer distances to the various cities it links. Pedestrian or animal power may be supplanted by the bicycle, truck, bus and railroad. Farm products as well as the farmers themselves now reach the cities more often and faster. Access to work will now be supplied to a rural population previously cut off from the cities. Industries may sprawl outside the new central areas. Gas stations and roadside villages, trading posts and inns, may begin to punctuate the roadsides. Other villages may have to be moved back of the road to allow it to go through. Controls of various sorts will have to be instituted. When such an improvement is undertaken, the power to acquire more land than is needed for the actual road be-

comes important. The excess land acquired may then be sold, subject to such conditions as will respect the best development of the surrounding area as well as the road. By such "excess condemnation" the public agency is also enabled to conserve for itself the increment in value from the road improvement.

In all of these cases, important facts which the draftsman must know are the areas of jurisdiction, the nature of the agencies to which the planning is to be entrusted, its relations to other public bodies, its powers and limitations and the methods for financing the improvements.

The Nature of the Agency and Its Relation to Other Agencies

Power is the rock to which sound planning may be safely moored or upon which it may founder. Regional planning may be either separated from function or part of it. When separated from function, the planning agency might be only the coordinating body whose primary duties are to approve the improvements contemplated by other public agencies. Such planning agencies have frequently been opposed or snubbed by the developmental agencies. It must be remembered that in underdeveloped countries the public works department is the most active agency in the making of public improvements. A public works department may be equipped and ready to build roads and therefore unwilling to wait upon the more comprehensive and longer range peregrinations of the more comprehensive planning agency. Seeing its functions disregarded the planning agency may then lapse into weary desuetude or confine its energies to exhortations and propaganda. This has often been the fate of many such non-developmental planning agencies. To give a planning agency more prestige and authority, a

number of avenues have been considered for them:

- (a) making the planning agency a board on which the development agencies are represented and in which they have an actual voice in policy;
- (b) giving the developmental agencies an advisory or consulting function within the planning agency;
- (c) giving the head of the planning agency cabinet rank in the government or province;
- (d) making the planning head a part of the capital budgeting office;
- (e) making the planning director an arm of the chief minister's office;
- (f) making the planning board a body composed of representatives both from the executive and the legislative departments;
- (g) making the planning agency a part of a developmental agency such as the public works department;
- (h) making the planning unit an autonomous body armed with financing and other powers which give it a handle for inducing compliance with its orders.

Each of these alternatives has its strong points and weaknesses, its problems and potentials; no general rule can do equal justice to all countries and situations. Often what is illogical on the chart becomes viable under an ingenious head while the best considered set-up may degenerate under a bungler. An inter-departmental board with a policy function has the merit of wedding plan to product in ceremony only to disclose its inferiority during consummation. This happens particularly when the heads of the component departments tend to direct their main efforts toward their immediate tasks and lose interest in those operations which impose collective as well as indirect responsibilities upon them. Their interest may flag even more when they have only a passive consultative function.

While giving the planning officer cabinet rank does elevate planning policy to the higher echelons of authority, it does not automatically remove inter-

official conflict and may sometimes increase it. Making the planning officer a part of the chief-minister's office gives planning a direct link to the highest level of policy-making but may encumber the chief-minister with direct and personal responsibility for more duties than he can find time to fulfill. Making the planning officer a part of the capital budgeting office is a strategic position for the planning function since the financial allocations for improvements are or should be made through the finance office. Often, however, the budgeting office wants to shun all but fiscal duties. Making a planning board representative of both the executive and legislative bodies has the advantage of inviting better legislative support but confuses the legislative with what should be exclusively an executive function. Finally, giving the developmental agency the planning function may divert planning toward a single work instead of creating an over-all, coordinative vantage point from which more comprehensive planning may emanate.

There is no answer *ex cathedra*. There are arguments for and against every alternative and what makes sense in Hong Kong, Malta, Singapore or Monaco, may make no sense in India, Pakistan, China or Brazil. Each will find itself involved with a particular administrative complexity, will be conditioned by the locus of planning enthusiasm and talent, by the type of developments, the financing arrangements and above all by the powers, connections, biases or personalities of the people involved.

A few generalizations may be pertinent: (1) No regional plan can be expected to receive the whole-hearted support of every section of the national community. Sectional interests, customs or traditions may spur opposition. But good public relations and know-how, coupled with

the just use of power, can often hold opposition to a minimum.

(2) Neither the central government nor the regional or local unit should be universally viewed as the most effective unit to do the planning. Generally, the wider the interests affected, the nearer to the center must be the source of authority. However, all relevant units must be involved, the function of each must be defined, the cooperation of each solicited and secured from the beginning.

(3) Planning completely divorced from development is apt to prove as frustrating as development unrelated to plan. The mere filing of a blueprint or book of rhetoric with glossy illustrations may have inspirational value but prove meaningless in the absence of an improvement in sight, capable of activating the plan and bringing at least part of it into being. The filing cabinets of Turkish cities and of some in the Far East bulge with blueprints that can no longer be translated into brick and mortar because intervening private improvements have obsolesced the plans. The happiest plan is one which can generate a chain reaction of improvements conforming to its proposals within a foreseeable period. This does not mean that a regional plan should be devoid of longer range goals but the goals must be realistic and not be so distant that they can never be scored.

(4) Planning is the province not of one agency but of many. The works agency building a road should have planners acquainted with its collateral implications and with the whole gamut of powers and devices in the planning arsenal—betterment and other taxes, compulsory purchase techniques, design, zoning, recreation, etc. The housing agency that builds houses or resettles squatters should have planners acquainted with the aspects of new town building and its wide planning ramifications. The water board

that runs its lines through a fallow waste vitalizes it into building lots and sparks improvements, the implications of which are vast and require a knowledge of planning techniques.

(5) Up to now, however, a gaping dichotomy has separated the developmental and the planning functions. Planning was often done in the tower and the spade-work in the field. The tower sought to impose its influence upon the field which felt no obligation to the broader plan and most often demurred or went its own way.

(6) The dichotomy will not be bridged until a responsibility for planning is felt by all the agencies involved. When thinking on planning has been insinuated into every aspect of development and function, then and then only is true coordination possible. Each functioning agency would then be the well-spring of planning ideas incident to its own operations and these in turn would fertilize healthier and more specific plans at the top.

(7) Such a reorientation of current thinking enforces a new look not only at the planning process but at planning and engineering education. It means that the engineers (civil, sanitary, etc.) must be given a knowledge of planning principles in the schools and that meanwhile as many planners as possible should be sought for the engineering staffs. An increase in the number of planning students and in planning courses is essential.

(8) Rationalization of planning can be often achieved by consolidation of functions. In some countries, housing, roads, water, ports and dams are each operated by individual agencies while housing may be built by all or most. So too, improvement trusts may be developing land for the wealthier families, while some housing is being built by the municipality, the public works department, the

cantonment board, the industrial trading estate, the port trust, the joint water board, the post and telegraph department, the electric supply corporation, or some other department. This is not necessarily bad *per se*, except where such operations are not related to the over-all plan and where materials and labor may be limited and each agency competes for the short supply to the detriment of the general good. Here, consolidation of some of the functions and coordination of others may be the answer.

In Karachi a statutory authority has been set up to take over the housing and planning functions of the Karachi Improvement Trust and of the Municipal Corporation as well as part of the Central government's refugee resettlement functions and the Karachi Joint Water Board's operations. The agency is authorized to prepare a master plan, establish housing research stations, industrial trading estates, and undertake 13 varieties of individual schemes. The agency is required to prepare an outline program for the improvement of various areas in the Karachi region and the government is required within 90 days either to approve or disapprove the program or request modifications to it. If there is no disapproval the agency may proceed with its plans. This aims to minimize the delays usually encountered from central agencies. The agency may also function outside the city's environs and may acquire land in excess of that needed for immediate improvement and resell it thereafter. It may declare any area a "use area" i.e., an area it deems ripe for development but which is unreasonable held out of use by its owner. This device might achieve the triple purpose of influencing land development, checking undesirable land speculation and creating a revenue for the agency.

The Public Authority in Regional Planning

A common mechanism for planning a specific regional improvement is the autonomous or semi-autonomous authority or commission. Resembling in many respects the private corporation, these public corporations have long functioned for the building of ports, bridges, housing, irrigation, highways, and other improvements. In contrast to the routine administrative agencies, they can wheel more freely through the administrative routines and political bottlenecks. They are controlled by a board of directors or managers and may keep receipts and make expenditures through their own accounts. The corporate agency has been employed not only to achieve efficiency in regional planning but as a municipal device to avoid debt limitations and facilitate public financing through its own bond issues. Its powers, duties and limitations are prescribed by statute.

While more efficient than an administrative branch of government, the objection has sometimes been raised that the public corporation or authority is too free from controls and that the frequent creation of such bodies complicates rather than simplifies governmental operations. On the other hand, creating an autonomous corporation to achieve efficiency and then destroying its autonomy by making every act subject to the approval of a department is worse than vesting the responsibility in the department directly. There is no point to setting up a mechanism designed to remove red tape and then throttling it with more red tape.

In the Philippines the vast and varied number of disparate corporations "supervised by a coordinator" represents one of the more flagrant misuses of the corporate device. Loaded with political personnel it did not need, the housing cor-

poration (PHHC) got into serious financial trouble. The autonomous corporation is no automatic guarantee of efficiency.

The question is how to retain enough control to insure fulfillment of the parent body's policies without sacrificing the essential flexibility the public corporation requires. The central ministry should (1) appoint key officers and directors (except those to be elected); (2) prescribe general directions on matters touching the national interest; (3) grant approval of capital programs; (4) audit accounts; (5) receive periodic reports; (6) order inquiries and intervene where inefficiency or corruption appears; (7) dissolve it when no longer necessary.

The corporate device has proven efficient in specific regional projects requiring quick decisions and freer multiple action. Thus, a Harbor Authority must not only contract for building the harbor but estimate and levy tolls, operate the project, make speedy repairs, build housing and recreation for its workers, work out arrangements with nearby villages and other public interests affected, time and coordinate the work and build the necessary roads and utilities without having to wait upon a busy public works agency or upon the numerous bureaus whose approvals might take months to process.

One of the best ways of assuring an authority's independence and efficiency is to lay down its goals and give it the basic fuel and equipment with which it can move and live without depending for every breath and crumb upon the government. Once original authorization for a project is given, the authority might be authorized to proceed without stagnating encumbrances interposed by the government. Independent revenues and land acquisition could also be helpful. Singa-

pore's Improvement Trust received a two percent tax on real property and special appropriations for specific purposes. One reason some improvement trusts often veered toward the less vital but more profitable operations such as subdividing land for higher income groups was that they were given no financial support by the government. If their aims were more clearly defined—if, for example, they were specifically instructed to build houses for the poorer families and loan funds, subsidies or independent revenues were made available to them—they might have done their job better.

One of the least developed utensils of the less developed areas is public finance through the indraft of private savings. Public finance is made feasible when the borrowing authority has sound revenues by which to secure the borrowings. At the same time savings are encouraged through the increased availability of safe and attractive securities of public authorities at fair interest rates.

While the creation of a multitude of separate revenue-collecting agencies has been often criticized, good policy would favor granting some revenue power to a regional agency. Bridge and tunnel authorities depend on toll charges, sewer authorities on assessments, water boards on water charges and housing authorities on earmarked subsidies or taxes.

There are untapped sources of revenues which may be tapped by a regional authority, not the least of which are betterment taxes and assessments on land, the value of which rises through regional development. With these revenues, an authority might in time develop its credit and the borrowing capacity with which to finance at least part of its improvements.

The Problem of Industrial Settlement

The primary influence in regional development is industrial settlement. It

determines the location of people, homes, trade, commerce, urban and suburban growth. Few will contest the generalization that excessive urban growth is undesirable and that industries are best sited where community life and housing already function. But stating the fact does not make it real. The factors influencing settlement today include not only the availability of raw materials and labor, power, orientation toward the market and transportation costs. There are also such diverse factors as climate and obedience to habit. There is also the proximity to education and recreation; to officialdom and contacts; to other trades and to centers of research; to doctors, lawyers, dentists, consulates, financiers, roads, local markets, airports, utilities and people; to the more ample choice of skilled personnel, universities and better schools for children; to metropolitan living and a pattern that affords anonymity when required and the agglomeration of theatres, bridge clubs, restaurants and amusements. Finally, there are the many enticements an executive's wife craves in the city and which she misses in the hinterlands. These include the department stores, beauty parlors, servants and cooks, better prospects for the teenagers, bazaars, and the wider choice of friends. In areas where good executives are as scarce as hen's teeth, the whims of the hen may be more decisive than the most persuasive statistics of the planner.

The big, sprawling, chaotic city intones its logic in its very being and all the planner's grim forecasts of its forthcoming demise have not stayed its ever-growing bulge nor the mysterious magnetism which continuously distends it.

Yet how control the surge toward the city when it is full, when it drains the countryside with its own valid institutions and when unabating migrations

cause ever-increasing social distortions and financial burdens? One answer is that public policy has also moved ahead as a force for counterbalancing the growing list of incalculables that draw to the city. Not only the cudgel of the police power, but the aromatic balm of subsidy and subvention are in the new kit of tools. Thus, industrial location has now become the product of a complex set of forces and counter-forces, influences and counter-influences. The executive's mate may ultimately bow to her husband's business requirements when sweetened by the better prospect of a longer trip to Paris each year, or a bigger house in a more rustic environment. And not the least of the counter-forces is the prospect of creating new cities with populations sufficiently large to offer their own challenging attractions and diversities. Here lies the most promising frontier. It is with manipulations of public policy that regional planning is now most concerned and in which it finds its most productive levers.

Regional planning today relies on any one or a combination of devices for the fulfillment of its goals:

(1) *persuasion*, i.e., influencing enterprises to settle through reasoning, altruism, or the nimbus of public spirit and its gratifications;

(2) *inducement*, i.e., offering loans, subsidies, housing, land and other public aid or indulgences;

(3) *compulsion*, i.e., prescribing through zoning or directive orders the places where settlement is permitted and where forbidden;

(4) *direct operations*, i.e., purchase of sites with public funds, building of factories or other installations by government agencies for public or private operation;

(5) *public-private joint ventures* in which government investment is made in private operations in return for which the public partner insists upon prescribing the conditions for industrial settlement as part of the bargain;

(6) "*planned inevitability*," i.e., the placement of public, transportation or other

facilities and investments into so tempting a gambit that it ineluctably veers the industrial move toward the desired square.

The choice between *laissez-faire* and pre-emption and between reasonable, confiscatory and compensable regulations calls for a difficult balance of alternatives; when funds are limited, subsidized expansion in one direction may sacrifice expansion in another; the choice between diversion of power from the local to the central levels may put at stake the pattern of democratic decentralization, local efficiency and better citizen participation.

In each case regional planning will involve a ken which cannot always be culled from the planning text books. The successful devices of one country may be applicable to another at a given time or place though not in another. Decentralization of certain functions in India may make no administrative sense in Israel or Puerto Rico, but may make sense in Pakistan. There are no universal relevancies in the planning process. Cure-alls too often turn out to be nostrums and what is a lotion for one body politic may be an abrasive for another. The best use of foreign devices can be achieved by cataloguing and assessing them as they were tried in their own settings and depositing them in a kit for cautious application as and when indicated. Adoption in any case, will almost inevitably require adaptation.

Compelling industry to provide housing for its workers, for example, will entail a balance of forces, not the least of which is the employer's willingness or capacity to contribute. The objections in more developed areas to company housing are largely extraneous in underdeveloped areas.⁵ Employers have sometimes found when they settle in raw

areas that they must provide housing to induce workers to come. But in other cases they will rely on the workers to put up their own shelter—usually makeshift additions to the world's slum inventory. Where industrial wages are low, a good case may exist for requiring contributions by employers toward housing their workers. All too often they tend to house only their higher-salaried people, leaving the others to shift for themselves. What should be viewed as an alarming increase in squatting, wholesale trespass and breakdown of legal process is being met with acquiescence or despair.

There are a variety of formulae under which housing could be provided, all of which will vary with the capacity of industry to contribute, the number and pay scales of workers, the nature of the site location, its effect on in-migrations, available utilities, permanence of the working force, the new public investments required and other factors.

Emphasis on the housing of workers has too often been on building costly towns that are monuments to the architects who build them and tombstones for the economy in which they are built. Excessive imports and needless outlays divert investment from the building of essential plants and industries. Minimum houses or "cores" which can be expanded by the occupant as earnings permit can hold such investments to a minimum while sound planning of land and utilities can assure sound neighborhoods for the longer run and avoid inevitable squatting.

Workers should, wherever possible, be permitted to purchase their homes under hire-purchase contracts. To avoid speculation in houses, any allottee selling his property should be first required to offer it to the authority or society through which he obtained it. Since housing in each community will be required for

⁵ With all varieties of home ownership formulae and the collective strength of unions they are in fact hardly applicable today even in the developed areas.

small tradesmen and other non-factory workers in the life of a community, housing for them must be part of any regional housing program. The labor housing estates should not be isolated adjuncts of the factory but be part of comprehensive settlements which include mixed economic groups as well as markets, recreation, offices, etc.

Provisions for Curbing Land Speculation

When land shifts from a rural to an urban commodity in a free market, speculation is as inevitable as are the emotional demands for curbing it. A speculator however, is often only an investor who takes a bigger gamble. A speculator need not always be a buccaneer and may even be a gentleman. Whether his speculation should be controlled at all entails a weighting of the advantages against the disadvantages of unrestricted markets, of its effect on private initiative and its impact on building and national development generally. In a free market, land speculation is no more wicked than cotton or stock speculation. Prospects of speculative land profits may sometimes even stimulate enterprise and spur subdivisions. On the other hand, runaway land prices, when they are the product of monopoly may hold back development and justify some forms of control. Whether to curb speculation, allow it to run its course or limit it, becomes a question of policy best determined on its own facts, shorn of the automatic opprobrium which so frequently accompanies it.⁶ If raw land (without utilities) is no more than twenty-five percent of house costs, land cost is not a troublesome aspect of housing development.

Reasonable limitations on land prices can be effected without confiscatory de-

vices through any one of a number of measures, all of which vary in their severity—price regulation, rent regulation, building regulation, zoning, subdivision controls, acquisition of development rights, acquisition and sale of reserve land, taxation, compulsory purchase, excess condemnation, public acquisition in advance of planning and settlement, the requirement of approval to build, reparation, the building of new towns, and controls through various forms of financing and inducements. Often, land speculation is a by-product of limited transportation facilities and "land monopoly" can be neutralized by widening access to new land areas. Arbitrary restraints in legislation often restrict the very private developments and investments which might help the region grow. Such curbs as price regulation and rent control on new building invite evasions if not stultification of investment. Taxation of land in the form of ad valorem levies has proven a feasible means for holding down runaway prices, particularly when the annually assessed valuation and tax levies keep pace with the periodic rise in value. Imposition of betterment taxes can also recoup some of the increment that accrues from public improvements.

Legislation and the Rationalization of Competing Land Uses

Allocating land between competing uses has always presented a troublesome problem. The most desirable land is the flat land near the established town and everybody wants it—industry, the army, the land speculator, the home-builder, the park department, the agricultural station, the cemetery, and the farmer. In Peshawa (Pakistan) 4-crop agricultural land is being scooped up by the hectare to make way for building lots. Elsewhere, cantonments sprawl in spa-

⁶ For a more extended discussion of land cost and speculation, see Charles Abrams, *Urban Land Problems and Policies—Town and Country Planning*, New York: United Nations Bulletin Number 7, 1953.

cious ease while workers huddle into crowded makeshifts, old forts or holy places. Industry seeks the nearby flatlands for its one story factories, the improvement trust for subdivision and resale, the speculator or builder for his operations, the government for its various requirements, and what is not built upon is soon appropriated by the squatter.

No country has found it simple to grapple with the land scrimmage. While competition and the operation of profit and loss may ultimately level prices, public agencies resolve their conflicts (when they do) by paramount political pressures and these are not always synonymous with paramount national needs.

Planning powers have and can be employed for a variety of purposes⁷ including the control of sprawl and speculation. These may aim to: (1) guide the use of land to promote the most advantageous development of the community (e.g., projection of factory, residential, commercial, park, parking and other sites under a master plan); (2) curb the misuse of land so that it will not injuriously affect the interests of the community (e.g., prevention of slum construction or unnecessarily intense development); (3) prevent the abuse of land (e.g., prevention of abortive subdivision, cut-over lands, etc.); (4) regulate the non-use or dis-use of land (e.g., taxation to enforce development, clearing of unmarketable titles, holding land out of use or restraining owners of occupied dwellings from discontinuing their use); (5) guide the re-use of land for more appropriate purposes (e.g., urban redevelopment, slum clearance and re-housing). But while power inherently exists in all governments to deal with the land problem, it is

not always translated into the proper legislation.

The Need for Legislation

Legislation generally is identified with the orderly administration of human affairs and regional planning legislation with the orderly development of a region. But whether legislation is needed depends both on the nature of the regional planning and on the governmental structure. Regional planning may be a by-product of fiscal policy⁸ while encouragement of industrial settlement by subsidy, tax exemption or public works are also forms of *ad hoc* regional planning. In some places a regional plan may be authorized by order instead of by legislative enactment but, whether by legislative enactment or order, the planning powers must be defined and vested in some agency authorized to bring the plan into being.

What is known as "enabling legislation" animates the agency and empowers it to do certain things while disabling it from doing others. In this connection the following generalizations are relevant to the legislative process:

(1) Power without funds or power bound by restraints and red-tape will inactivate a regional planning agency. A realistic minimum of consents should be prescribed.

(2) As many policy questions as possible should be resolved before the legislation is submitted so as to minimize debate on questionable provisions, bring about half-baked amendments on the floor or defeat of the legislation.

(3) What is not authorized directly will usually be beyond the agency's scope. Legislation should, therefore, embrace all the essential powers and envision future requirements and changed conditions.

(4) General powers written in broad terms give freedom to act. Detailed specifications limit the agency unless otherwise stated. While some limitations may be unavoidable

⁷ For an expanded discussion, see *ibid.*, p. 34.

⁸ See Lloyd Rodwin, *Paper* delivered at United Nations Housing Seminar, Tokyo, Japan, July 1958.

and some are essential, they should be held to a practical minimum. A statement of standards is one good way of setting forth legislative intent without snarling administration.

(5) While a proven administrator given a wider discretion, is a good investment, legislation cannot generally be tailored to fit the particular administrator for none are immortal and few indispensable in the craft of politics. The person to be put in charge should, wherever possible, be consulted at the time of its drafting.

(6) Clear demarcation of authority between overlapping agencies is essential to avoid the need for unnecessary coordination later.

(7) The drafting process is not an exercise in cryptography—the good lawyer writing a law for the public, unlike the doctor writing a prescription for a druggist, will write it so it can be understood by the layman. Rules of construction generally prescribe that the terms of legislation are to be given their plain and ordinary meaning.

(8) The length of legislation is no evidence of the draftsman's dexterity—the shortest legislation may in fact be the most effective, if all the required powers are there. Since legislators are not often planning technicians, the draftsman's influence is not inconsequential and he should continually confer with the relevant agencies during the drafting process.

(9) Regional planning laws will differ from country to country, region to region and purpose to purpose. The copying of another nation's laws is an invitation to trouble.

(10) Legislation should: include the preamble and title of the legislation; state the jurisdictional limits; define the terms ("region," "district," "city," "regional plan," "scheme," etc.); establish the authority, describe the governing body, its duration, salaries of members, duties of the chairman, director, advisory committees and others; provide for the quorum, offices, rules and regulations, meetings, delegation of powers and other details; provide for preparing master and other plans and schemes, and for approvals by government agencies, for grants of funds, sinking funds, investment of assets, audits, payment of taxes if any; contain general powers including powers to borrow money, issue bonds, acquire land by compulsory purchase or otherwise and lease or dispose of it; provide for the cooperation of

other agencies and the relationship to such agencies and their power with respect to the plans; contain powers, if any, to make building codes, subdivision controls, or deal with unfit buildings, levelling and draining of private streets, building of roads and utilities; provide for betterment and other fees or taxes and for providing water and for recovery of charges; prescribe the penalties for violations and other miscellaneous provisions applicable to the particular country and project.

Regional Planning as an International Frontier

Up to now we have touched upon some of the more soluble though still intricate, aspects of internal regional planning. Here a sovereignty has sought to win the cooperation of its subordinate political units to a regional project or to undertake it directly by asserting its paramount authority. To proceed from this to international regional planning might seem like venturing from the obscure to the unknowable. Yet no discussion of regional planning can fail to give at least passing mention of the regional implications of the United Nations charter, its frequent references to "international cooperation," to the provision that parties to a dispute, first of all seek a solution by "regional action" and to . . . resort to "regional agencies" or "arrangements." . . ." (article 13, 33, 52). Regional alliances to maintain peace and economic cooperation among nations having regional problems constitute one of the United Nation's cardinal purposes and hold its hopes for the peaceful adjustment of inter-boundary conflicts and competitions.

Essentially, contract has been the instrument carved out by civilized society for defining rights and duties; and the completion of the transition from force to contract achieved by man is long overdue between his governments. Perhaps the "superstate" requiring surrender to an international unit of tariff control, com-

merce and arms along the lines of an American union of states may be remote in our time. But there are many gaps short of union which can be closed by compact, convention or treaty—there are many projects which can make international river valleys, water, power, communications, transport and industry a multi-national dividend of cooperative effort. The forms of cooperation which could deflate the causes of political competitions and war are many and diverse. One thing is certain—the stubborn persistence of national ambitions to the detriment of universal welfare can no longer sustain itself in face of the latest paraphernalia for mass destruction.

The bold ascent therefore, of the regional planner from internal regional planning to the far more complex international sphere may be forgiven in the light of King Henry's enunciation to Gloucester—"Gloucester, 'tis true that we are in great danger, the greater therefore should our courage be."⁹

The courage required entails first an identification of the problems which can yield to contract, and thereafter the painstaking negotiation and formulation of legal instruments and devices which would convert fears, jealousies or disagreements into definable accords. There is already a record of tens of thousands of international agreements which offer hope for its wider extension.¹⁰

From the time of the informal "Concert of Europe" to the much more powerful European Economic Community, inter-governmental bodies have been operating in political, economic and social areas in steadily increasing numbers, not only in

Europe but elsewhere in the world. Benelux, which included only three countries and which has grown into the European Economic Community with six participating countries,¹¹ and the organization for European Economic Cooperation with seventeen participating countries are recent examples of the widening frontier of international regional cooperation. They argue well for its extension into the great physical improvements that are vital to regional rationalization.

A number of regional agencies, political and economic, operate under the United Nations Charter and others outside United Nations.¹² There are also a number of United Nations agencies which concern themselves in specialized fields such as the International Labor

¹¹ The European Economic Community came into force early in 1958 and (1) provides for liberalization of trade in manufactured goods, a common agricultural policy and market; (2) sets up a development fund for financing investment in associated overseas countries and territories; (3) provides for harmonization of economic policies and conditions of competition by facilitating the resettlement of workers and the reconversion of industry, correction of undesirable effects of market forces by regional planning for development through a Readaptation Fund, and an Investment Bank and a Development Fund.

¹² Examples of the regional economic agencies set up under the United Nations Charter are the Economic Commission for Europe (ECE); Economic Commission for Latin America (ECLA); Economic Commission for Asia and the Far East (ECAFE); and the newly created Economic Commission for Africa. A number of more active regional agencies outside the UN grew up in Europe particularly, based on membership in countries in Western Europe only. As most of the Eastern European countries in ECE did not wish to participate in some of these programs, it was impossible to utilize the same machinery. Examples are: the Organization for European Economic Cooperation (OEEC), the European Payments Union (EPU), the Council of Europe, and the North Atlantic Treaty Organization (NATO). In other areas of the world there are the Arab League, the Organization of American States, etc.

As far back as 1917, one writer estimated some 25,000 international agreements then in operation. They included treaties of peace, alliances, neutrality, etc.; economic agreements involving commerce, transport, property, etc.; and agreements involving public health, scientific or educational activities. It is in the economic and social areas that many projects within the regional planner's sphere are encompassed.

⁹ William Shakespeare, *Henry V*, Act IV.

¹⁰ D. P. Myers, "The Control of Foreign Relations," *American Political Science Review*, Volume XI, 1917, pp. 24-58.

Organization.¹³ The specialized agencies and the UN participate in the United Nations Expanded Program of Technical Assistance which conducts voluntary programs in individual countries, sometimes on a regional basis. There is the newly established United Nations Fund under the management of Paul G. Hoffman which is designed to accelerate development, but leaves its execution to others. There are also the great private organizations, the international business corporations, the great foundations and the numerous non-governmental commerce associations with their special programs and interests whose operations cut across national boundaries.

Unfortunately, most of the international agencies concerned with regional problems are separated from actual development and, as with internal regional planning, the most effective planning will flow out of an improvement in sight or in being.

Much of the international regional planning, moreover, is still exhortatory. The fears of surrendering autonomy and the same apprehensions, jealousies or stubborn traditions that block inter-city and inter-provincial cooperation continue to frustrate essential international projects. There is also the same reluctance to coordinate efforts except in the rare cases where supervening crisis enforces them—and sadly, exigencies loom ever larger without prospect of winning the much-desired cooperation. Finally, there is the same dearth of technical

competence that can carve out the devices for rationalizing conflict through a persevering clause-by-clause negotiation aimed toward specific objectives.

One might summarily conclude that considering the limited development of internal regional planning, there should be even less hope on the international scene—(e.g., “if we have made such small progress where police power exists, why venture where it has not even been spawned.” Yet, on reflection, such comparisons are not entirely valid. For the forces of persuasion, inducement and “planned inevitability” can be made to function forcefully in many aspects of the international community. What are needed primarily are:

1. an up-to-date survey of potential projects (waterways, dams, transport, industry or communications) and the development of an inventory of those undertakings in which good sense dictates the making of regional arrangements.
2. initiation of a few viable undertakings which can have a constructively contagious quality and serve as pilot or inspirational efforts for others.
3. development of a pool of experts equipped to aid in the planning, development and management of the enterprises.
4. the re-assessment of the role of private international investment and the enrollment of private interest through the form of limited guarantees or other inducements.
5. provision of ample funds—both loans and subsidies—which will serve as an inducement to undertake the projects.
6. refinement of the corporate, contractual, managerial and administrative mechanisms for building and operating international regional enterprises which will give proper representation to the nations concerned, will effect a reasonable distribution of costs and dividends and will win the confidence of the participating nations.

One of the principal issues, of course, will involve the relinquishment of some sovereignty by the nations concerned. But “sovereignty” is a much abused term and “surrender of sovereignty” even more

¹³The other specialized agencies are the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Civil Aviation Organization (ICAO), the International Bank for Reconstruction and Development (IBRD), the International Monetary Fund (IMF), the World Health Organization (WHO), the Universal Postal Union (UPU), the International Telecommunication Union (ITU), the World Meteorological Organization (WMO), the Intergovernmental Maritime Consultative Organization (IMCO) and the International Atomic Energy Agency (IAEA).

so. Often what is called surrender of sovereignty is only a limited grant or license and sometimes what was intended as a simple license has turned out to be an unanticipated surrender of sovereignty. A government that grants an oil lease, charter, franchise or contract for building a dam to a foreign corporation, surrenders substantial rights for the duration of the agreement. If it deals arbitrarily with those rights, it pays the price in the discouragement of future investment. Sometimes violation may invite pressures, sanctions and, in extreme cases, even military intervention by the investor's government.

A number of formulae have been employed in regional planning to date including: a charter to a large private corporation; a grant of rights to a foreign government or foreign public corporation over a region (Panama Canal); a grant of rights by lease, franchise or contract to several governments for projects undertaken by them directly; regional development by a public or quasi-public authority with a mixed public and private investment; regional developments governed by compact between two or more nations.¹⁴

Improvements made by such agencies may be financed internally by private loans; internally by general or earmarked revenues, tolls or taxes; externally by private loans; externally by another government or governments; or externally by an international agency such as the World Bank.

In all cases in which foreign investment is made or rights granted, there are

consequences which follow out of the grant of rights. And the consequences may depend largely upon the terms of the agreement or the rights granted as well as upon the good faith of the parties involved.

Some of these may entail risks, others may not. But the least explored yet most fruitful potential for an administrative and contractual mechanism which could give the greatest freedom against usurpation of national prerogative lies in a regional development corporation set up by the United Nations. Through such an agency—representing all nations—lies the apparatus for a new kind of autonomous body—administratively equipped but without the appetite for undue influence that is often a danger in foreign administration and investment. Possessing technical skills it would not exact a predatory price for the loan of those skills. Able to finance improvements it would not demand a military alliance in return for the loan. To gain this goal, however, a transition must be made by the United Nations from "consultation," "research," "study," "advice," and "recommendations," etc. to include actual financing, building, aiding and operating by the corporation itself, or its subsidiaries.

The nations who continue to make loans unilaterally must, of course, be willing to invest more substantially in such an authority. Such an authority in turn must be equipped to finance, build, operate and subsidize. In each instance, the mechanism of controls must be shaped to satisfy the particular purpose as well as the needs of the nations involved.

The interesting devices worked out in the field of private contract can be built upon for international cooperation, i.e., public and quasi-public operations; the joint venture; the limited partnership; the various intricate corporate mechanisms for exercising con-

¹⁴ An interesting departure from this tendency may, if it exceeds, provide a prototype for more active participation by UN. It is the development of the lower Mekong in Southeast Asia in which the four riparian countries, Cambodia, Laos, Thailand and Viet Nam are committed to develop jointly the lower reaches of the Mekong. This project fathered by UN is receiving increasing support from Canada, Japan, Australia and the United States. It is as yet too early to predict what UN's actual operating role will be in the venture.

trols, voting rights, etc. that afford protections to the participants without entailing a dismaying surrender of essential autonomy.

Conclusion

The development of legislative and administrative devices required for regional planning presents a challenging frontier for the politician, statesman, economist and administrator as well as for the legislative draftsman. Breakthroughs have been accomplished but they have only scratched the surface of a vast potential. The most constructive area lies in identifying the projects; carving out the local, national and international spheres of participation; determining the roles of the participating interests; the powers and limitations of the operating

agencies; the zones of "sovereignty" and their scope and limitations; the means of financing; and the essential tools for achieving the break-down of fears, hatreds and jealousies that bar the road to a better understanding among men.

Until the gaps in research and from research to implementation are filled, regional planning will remain incomplete in its most fruitful aspects—an unpaved and uncharted path to heaven stocked with good intentions and waiting for the craftsman to mix them into a mortar that will build the road to abundance and peace. Much of the raw material is there. Finding the formulae and turning them into finished product are the real challenges that lie ahead.

The Duty of a Public Utility to Reduce its Income Tax Liability by Using Accelerated Depreciation

By BEN W. LEWIS*

Occasion

THIS PAPER is offered not alone for what it may contribute toward solution of the policy issue set forth in the title, but also as an illustration of a functional approach to the problems of public utility regulation which, to me, makes sense. Regulation has an *economizing job* to do within the structure and processes of our over-all economy. It has long seemed to me that if we could identify and spell out very carefully the nature and dimensions of this function, and thereafter could focus and prosecute our analyses of given regulatory issues in light of our common understanding of the job we have assigned to regulation, we might reduce substantially the policy differences which now too frequently separate us.

The occasion for the paper is afforded by the following statement appearing on page 42 of *Public Utilities Fortnightly*, January 1, 1959:

"The 'flow through' method of handling deferred taxes resulting from accelerated depreciation seems to be gaining slowly over the policy of 'normalizing' and setting up a reserve for future taxes. The temptation to give the consumer the benefit of the tax 'saving' has proved too great for some of the state commissions—Maine and New Hampshire have been followed by Pennsylvania, Missouri, and (presumably) California. Thus some utilities have been pushed into flow through, while others have instead decided to abandon the use of accelerated depreciation. This in turn has raised the question whether a commission can legally force a utility company to use accelerated depreciation, but apparently thus far the commissions have been able to rely only on moral persua-

sion . . . In a recent rate case, the superior court of Pennsylvania sustained the commission in holding that management cannot be forced to use accelerated depreciation."

Proposition

The users of public utility service should, in their own interest as well as in the interest of those who furnish the service, pay the full cost incurred under alert, efficient and responsible management in providing the service they desire; and they should not be required to pay more than this cost. It is the duty of any regulated public utility to seek out and to incur the lowest reasonable costs of performing the utility services desired by the public; and it is the responsibility of the regulatory authority to make certain that this duty is discharged. A public utility which, either by inadvertence or deliberate choice, fails to reduce its income-tax costs by taking advantage of the opportunity afforded by its government to employ accelerated depreciation in calculating its income tax liability either should be forced by regulation to avail itself of this cost-reducing measure or, in the alternative, should be permitted by regulation to recover in rates only that income tax cost which it would have incurred if it had so reduced its tax liability.

Argument

1. *Nature and Function of Competition.* The operating duties and responsibilities of public utilities and the agencies charged with the regulation of public utilities grow naturally out of their respective roles and functions in the economic system in which they exist and of which they are a part.

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An economic system (political economy) is a set of man-made and man-accepted arrangements designed to "economize" our natural and human resources; that is, to bring about the use of these resources as society wants them to be used. When men live and make their living together, a system must be devised (and continuously re-devised) to provide continuing, working answers to the questions, "Who shall produce how much of what, and how shall the product be divided?" It is the function of an economic system to provide the answers to these questions that society wants. Economic systems are made by men, over time. The economic system in operation in any country at any time represents the way in which the people of that country, at that time and as they are then persuaded, want the economizing function in their society to be performed. The systems with which we in the Western World are most familiar represent various and varying proportions of "free enterprise" and conscious, collective (governmental) control and enterprise.

In the "free enterprise" or "free market" sectors of our economies we rely for performance of the total economizing function upon the forces of (1) free, individual initiative and choice, (2) economic (profit) motivation, and (3) unrestrained rivalry (competition) between independent, profit-seeking sellers and between independent, profit-seeking or satisfaction-seeking buyers. Through these forces we hope to achieve maximum use and output of our resources in the directions we desire, and the division and use of the products of our resources as we want them to be divided and used. The rationale of the process is simply that, although everyone is seeking maximum gain under conditions of freedom from conscious control by the group, each of us is nevertheless forced by *competition* of

others similarly motivated to offer to the market the best of which he is capable (as the market measures "best"), not alone to make the greatest gain but in order economically to survive. Under this philosophy we abhor any substantial lessening of competition as opening the door to the giving of less to the rest of society, and the exacting of more—lower output, higher charges, mal-allocation of resources and mal-distribution of income.

2. *The Nature and Function of Public Regulation.* In many sectors of the economy and for many reasons we move, through government, to supplement, modify or displace the processes and the decisions of the free, competitive market. We supplant the market notably and most systematically in those instances where we are convinced that for physical and economic reasons competition cannot be relied upon as an effective regulatory force. In the case of public utilities, for example, although we depend largely upon privately-owned enterprises for provision of service, we insist that the service be rendered under conditions of monopoly, and we institute and maintain government regulation, in place of competition, to promote and protect the public economic interest. Public regulation is an inherent, integral part of the privately-owned utilities industries as we know them today. It is the natural, necessary complement of private ownership—as "natural" in this setting as competition in its setting in the free market. And, like competition, it has a regulatory, economizing job to do.

3. *Duty of Regulation to Regulate.* It is the task of competition to compel individuals, including the management of firms, to behave in economic matters as society wants them to behave; this is what we mean by the economic process, and it is the driving, compelling, demanding force of competition on which

we rely to make the process effective. Individuals and managements disobey the commands of competition at their peril. Whenever and wherever competition proves to be unsuited or inadequate to this task we replace it with public regulation, and it is equally the duty of public regulation to require of individuals that society's wishes in economic matters be served. Put bluntly, it is the clear duty of public regulation to regulate.

The fact that in the course of discharging this duty, regulation finds it necessary to come to grips with, and sometimes to counter the sincere desires and honest judgments of business managements is in no sense an indication that regulation has overplayed its hand. Regulation is not easy either for the regulated or for those who regulate. Inevitably, it must always contemplate, and frequently must require the subordination of individual judgments to the judgment of the agency charged by the public with the regulatory task. This is its very nature. After all, no regulatory force known to man is more ruthlessly domineering in its demands and more without consideration or compassion for the individuals it governs than the market competition which we accept and extol as the regulatory instrument of free enterprise. Within the area of the economy in which the public has installed public regulation in lieu of competition as the economizing force, regulation can be more discerning, more genuinely understanding and more directly purposeful than the competition which it has displaced. But, by the same token, regulation which is conscious of its high purpose and duty can never be less *aware* than competition—or less forthright, penetrating and vigorous in its regulatory impact.

The public regulation of public utilities is concerned directly with rates and service—the focal points of contact be-

tween the companies and the public—and it is concerned, of necessity, with any and all aspects of company organization, financing, accounting and operation that bear on rates and service. All of these matters, straight across the board, are recognizable as the natural concern of company managements. But they are also the concern of those served by the companies and hence the necessary concern of regulation. If regulation is to do its job, and so preserve private enterprise as well as regulation in this industry, none of these matters can be insulated from the scrutiny of regulation or made immune in any absolute sense to its final, over-riding judgments. Consideration of the range of authority granted by legislatures to typical public utility commissions throughout the United States provides convincing pragmatic support for this proposition.

4. *Cost and the Rate Level: A Functional Approach.* Cost of providing the service is employed almost universally by public regulation as the standard of the "fair" and "economic" level of public utility rates. Diversity of opinion on the proper make-up of cost has of course, been rife but there has been no significant deviation from the use of cost as the basic rate-level standard. This use of cost is sound in principle and workable in practice; it is, in fact, demanded by any rational, functional approach to the problem.

The public depends upon the free, voluntary action of individuals to furnish it with electric power, gas and telephone service—as much service as it wants and is willing to pay for. The provision of telephone service requires capital (from owners and creditors), management, labor and a wide variety of products and materials. These necessary factors will move into and remain in the utilities industries in sufficient continuing volume

only if, in competition with other industries also bidding in the free market for factors, the utilities industries, through their managements, are able to pay sufficiently attractive prices and wages and to hold out the prospect of sufficiently attractive returns to capital. These prices, wages and returns constitute the total cost of providing the total service; and it cannot be disputed that, if the public wants the service from private enterprise, it must meet these costs in rates. It is the duty of regulation, in the public interest, to see that rates are geared to the performance of this essential economizing function.

It is also the duty of regulation, in the public interest, to see that the level of rates is *not higher* than the level of over-all cost. Rates (and hence earnings) in excess of the total cost necessarily incurred in providing the service cannot be justified; they have no basis in economics and they can claim no support from equity.

The point may be put most forcefully in the form of a simple answer to the simple direct question: "What do we have to pay in the free markets for capital, management, labor and materials in order to get what we want in utility service?" The answer to this question gives us the *cost* figures which serve to set the level of gross earnings for the companies and the over-all level of their rates. From a straight-forward, businesslike, functional point of view, the establishment of rates on the basis of costs makes sense.

5. Rate Regulation Requires Cost Regulation. If the principal direct public economizing responsibility which public regulation has to discharge is the setting of rates and if rates are necessarily based on costs, regulation can scarcely afford to be indifferent to the recording of costs and to their make-up and amount. As a matter of fact, of course, public regulation

virtually begins with prescribed forms of accounts and records; no one believes for a moment that regulation can proceed in the absence of cost records kept and reported in a manner satisfactory to regulatory authorities. It is equally clear that, if regulation is to be other than an empty rite, it must possess and exercise the authority to scrutinize costs as recorded by the companies and, where the costs claimed by the companies as recoverable in rates bear no reasonable, functional relationship to the provision of the service for which rates are demanded and paid, to strike the costs from the rate level calculation.

Traditionally, two arguments have been offered against the proposition that regulation must have authority to check operating costs of public utilities, and to reject for rate-making purposes those claimed costs found to be excessive in amount or non-functional in character. It has been said by some utility spokesmen: "The money belongs to the company; what we do with it is our own business." It is evident that this argument completely misses the issue; if the disputed cost is made the basis for the exaction of higher rates, its amount and character are clearly the business of those who are forced to pay the rates, and clearly the business of the regulatory authority charged with the protection of their interests.

6. Management Not Insulated from Regulation. It has also been argued that exercise of regulatory authority over operating costs amounts to a confusion of *regulation* with *management*, and to an invasion by regulation of the province of management which, for reasons that seem to be felt but somehow to be incapable of articulation, is presumed inherently to be beyond the scope and reach of regulatory concern and action. To accept this argument is to submit to

conviction by words as distinct from meaningful ideas. Operating expenses are, of course, managerial matters; but so are rates, service, accounting, financing in all its aspects, capital expenditures and a dozen other matters with which both management and regulation are concerned. Regulation by the very nature of its role and function must deal with matters with which management deals; it is managerial judgment on these matters that regulation must appraise and be prepared to guide and restrain—in the same sense that competition in the free market area guides and restrains managerial judgments in businesses not subject to public regulation. The issue—if in fact there is a genuine issue at this point—is whether managerial judgments on operating expenses are inherently, by their very nature, immune from regulatory review. The issue can scarcely be resolved by the question-begging procedure of terming the judgments “managerial.”

The judicial authority usually cited in support of the allegedly significant distinction between regulation and management is *Missouri ex rel. Southwestern Bell Telephone Co. v. Public Service Commission*,¹ where, in overruling the Missouri Commission's disallowance for rate-making purposes of license contract payments made by Southwestern Bell to its parent (A. T. & T.) company, the United States Supreme Court said, at page 289:

“It must never be forgotten that while the state may regulate with a view to enforcing reasonable rates and charges, it is not the owner of the property of public utility companies and is not clothed with the general power of management incident to ownership. The applicable general rule is well expressed in—291 Ill. 209, 234. ‘The commission is not the financial manager of the corporation and it is not empowered to substitute its judgment for that of the directors of the

corporation; nor can it ignore items charged by the utility as operating expenses unless there is an abuse of discretion in that regard by the corporate officers.’” [Emphasis supplied.]

What is frequently overlooked, however, is that it took the Supreme Court just seven years to change its mind. The position taken by the Court in *Smith v. Illinois Bell Telephone Co.*,² reflects a broader and much more realistic view toward the very item which prompted its *Southwestern Bell* pronouncement. In the later case it held that it was the clear duty of the regulatory commission to inquire into and to satisfy itself on the amount of payment made under the Bell-A.T. & T. license agreement.³ As a matter of fact, commissions in the United States, both before and after the *Southwestern Bell* case, have regularly reviewed operating expenses claimed by utility companies as recoverable in rates and, over protests that the province of management was being violated, have on many occasions rejected claimed costs as excessive or non-functional. In some instances, courts have reversed commission orders on their substantive merits but it is too late in regulatory history to argue now that any phase of utility operation that bears significantly on the level of rates is closed to examination and possible action by regulatory authority.

It may very well be argued that regulation should not be over-eager to dissipate its energies and its resources in pointless reconsideration of every operating decision made by management and that it should not stultify the normal performance of the managerial function by rushing in to rewrite every contract entered into by management and to substitute its own judgment for that of management on every disputed operat-

¹ 282 U.S. 133 (1930).

² See also *Western Distributing Co. v. Public Service Commission of Kansas*, 285 U.S. 119 (1932); and *Acker et al. v. United States et al.*, 298 U.S. 426 (1936).

³ 262 U.S. 276 (1923).

ing item. As a practical matter of regulatory administration it makes sense for regulation to be modest in asserting the superiority and seeking to establish the supremacy of its own views on every matter on which management has spoken. But regulation is reduced to a farcical exercise in futility if, when regulated rates are based on cost, it is barred (or bars itself) from any effective review of management claims for the recovery of costs running into millions of dollars. The justification for review is even clearer when the cost item in dispute is already the subject of widespread informed public concern and discussion. Regulation is a tender flower indeed if in such situations it must blanch and wither at mere mention of the word "management."

7. Standards for Allowable Costs. It would seem beyond question that those who use a utility service, and who have no choice but to use and pay for the service furnished by the single company permitted by law to render the service in the community, should be required, under regulation, to pay no more than the reasonable cost of providing the service under alert, efficient management. Managements of businesses subject to the drives and compulsions of competition have no alternative to alertness and efficiency; they can afford no operating pattern that does not include a constant search for low and lower costs. Failure is the accepted price of incapacity or indifference in the free market. On this score the public is entitled to nothing less from public regulation than it gets from competition.

To be sure, regulation has a difficult role to play in compelling alertness and efficiency in management because in considerable measure it can only review

management decisions, usually it cannot make the decisions in the first instance; and also because, in its review, it rarely has the opportunity to employ precise, scientific standards. Workable standards of efficiency can be transferred from one situation to another, or from manuals to the actual scene of business practice, only with great caution and with reservations. Thus, in many instances in which regulatory authorities might reasonably be inclined to require utility managements to adopt, or to refrain from adopting certain practices, the fact that the matters in dispute lie well within a "zone of judgment" makes it inadvisable for regulation to press its view to the point of forced adoption.

But there are clear cases, as well—cases in which regulation, if it is to make even a pretense of playing its appointed role, must act with vigor. Utility companies have been known, upon occasion, to incur expenses which have no functional relation whatever to the provision of utility service and which therefore are not a proper charge against the consumer; and to pay fees or prices to affiliated companies far in excess of any reasonable cost of providing the service or commodity; or to insist upon using a financial structure which completely disregards the public interest in economical and efficient acquisition of capital. In these and similar cases, regulatory commissions have not hesitated to base rates upon reasonable fees, prices and financial costs rather than those claimed by the utility. Authorities must take such action in these cases if regulation is to be more than a rubber stamp—if, indeed, it is to accomplish more than to lend government approval to transactions which are not in the public interest and which, in an effectively competitive free market,

could not be made the basis of price impositions upon the consumer.⁴

8. *Tax Payments a Concern of Regulation.* Such a case is that in which a public utility, upon being refused permission to retain solely for itself the savings made possible by taking advantage of the accelerated depreciation provisions of the income tax law, thereafter refuses to employ accelerated depreciation in its income tax calculations and insists upon paying (and charging consumers for) higher income taxes than the law requires.

Under accepted regulatory practice, taxes (including income taxes) are treated as necessary operating costs to be recovered, explicitly, in rates charged to users. The utility company is made to serve, essentially, as a tax-collecting conduit between users of utility service and the government. Other factors remaining unchanged, higher taxes mean higher rates; lower taxes, lower rates. There is no occasion here to discuss whether the income tax treatment enjoyed by utility companies places them in a favored position vis-a-vis other income taxpayers: by law and accepted practice, income taxes paid by utilities

are directly recoverable costs. As costs, tax payments necessarily come under regulatory scrutiny and, where managerial action affecting the public interest is concerned, tax payments fall necessarily within the ambit of regulatory authority. The responsibility of regulation in this area does not differ either in kind or degree from its responsibility in other areas where management decisions affecting costs are involved.

9. *The Duty of Regulation.* It appears that an increasing number of commissions are ruling that for rate-making purposes utilities may claim as recoverable tax costs only the amount actually paid in taxes and that, if a utility company reduces its tax payments by taking advantage of the accelerated depreciation provision of the income tax law, the benefit of the saving must be passed on to users of the service. The policy issue which gives rise to the present paper is whether utility companies should be required by regulation to take advantage of the tax-reducing provisions of the law and so to make tax savings available to users in lower rates. If the propositions advanced thus far in the paper are valid, it is almost axiomatic that regulation should accept and discharge this responsibility. A balancing of relevant considerations will establish that, at no cost to the utility company, under regulation, the total public interest will be served by a ruling requiring management to incur the lowest tax liability afforded by the law.⁵

⁴I will assume without asking the reader to recanvass familiar arguments that, in the absence of adverse changes in the income tax law, the savings resulting from taking advantage of the accelerated depreciation provisions of the existing law will be permanent in the case of any utility which maintains a policy of regular investment in assets subject to depreciation, i.e., unless the utility's expenditures for new plant should, over a considerable period, be less than the cost of its property being retired from service. I take it that, quite apart from any policy conclusions that may be drawn from this proposition, the validity of the proposition itself is now firmly established. See Sidney Davidson, "Accelerated

⁴The books contain many cases in which commissions have substituted their own judgment for the judgment of management on both the kind and the amount of operating expenses that may be recovered in rates; and the books are full of cases in which commissions have felt impelled to scrutinize and pass on operating expenses. For cases even before 1925, see H. C. Spurr, *Guiding Principles of Public Service Regulation*, Public Utilities Reports, Inc., Washington, D. C., Vol. 2, 1925, ch. xlix; and for a profusion of more recent cases consult the *Annual* volumes of *Public Utilities Reports*, under the heading "Expenses." Cases particularly pertinent to the subject matter and contentions of this paper are those involving the use by commissions, in computing allowable returns, of "constructive" as distinct from actual stock and bond structures. See, among other recent cases, *Re Southern Bell Tel. & Tel. Co.*, 4 PUR 3d, 195 (Alabama, 1954); *Re Mountain States Tel. & Tel. Co.*, 1 PUR 3d, 129 (Colorado, 1953); *Re Mountain States Tel. & Tel.*, 2 PUR 3d, 75 (Utah, 1953); *Re Western Union Telegraph Co.*, 8 PUR 3d, 118 (New York, 1955); *Re Illinois Bell Telephone Co.*, 7 PUR 3d, 493 (Illinois, 1955); *Pennsylvania P.U.C. v. Peoples Natural Gas Co.*, 6 PUR 3d, 341 (Pennsylvania, 1954); *Re New England Tel. & Tel. Co.*, 2 PUR 3d, 464 (Massachusetts, 1953), affirmed in *New England Tel. & Tel. Co. v. Massachusetts D.P.U.*, 331 Mass. 604, 6 PUR 3d, 65 (1954).

Typical cases in which this issue arises and may be expected to arise do not involve lethargy or indifference on the part of management; management makes a deliberate choice to forego a course of action which would produce lower rates for users. We are confronted not with a failure actively to seek lower costs but rather with a considered refusal to follow a readily apparent lower-cost course of

(Continued from page 110)

Depreciation and the Allocation of Income Taxes," *The Accounting Review*, April 1958, p. 173. Certainly the proposition is implicit in any commission ruling that a utility which uses accelerated depreciation for tax purposes must allow the resulting tax savings to flow through to consumers in the form of lower rates. Note, however, that on November 27, 1958, the Governor General in Council declined to upset an order of the Board of Transport Commissioners of Canada holding that the Bell Telephone Company of Canada need not use accelerated depreciation in its income tax calculations despite an earlier ruling by the Governor General in Council that if the company chose to use accelerated depreciation it could not "normalize" its taxes for rate purposes. (Privy Council Order No. 1958-1625)

I should like also to dispose in summary fashion of another matter which, although relevant, is not central to the main contention of this paper. It is sometimes argued that to compel public utilities which choose to employ accelerated depreciation to pass on to consumers the tax savings resulting from the choice is really to fly in the face of Congressional intent—that Congress has evidenced no intention to exclude public utilities from the full benefits of the program. If there is force in this argument, it would appear that the will of Congress would be doubly flouted if public utilities were to be required first to use accelerated depreciation and then to pass the benefit on to consumers. On the other hand, it can be argued with at least equal (and, in my judgment, even greater) cogency that the Congressional purpose was not to dispense windfall gains to any industries but solely to encourage and bring about a desired increase in industrial investment, and that the accelerated depreciation program can serve no such purpose in the case of public utilities since it is already the universally recognized and accepted duty of public utility regulation to establish utility rates and earnings at levels which will evoke and support as much investment as the public wants. No sensible public purpose is served by an attempt to pile an extraordinary investment program on top of an already established adequate program—and we must assume that Congress did not seek to serve vain and foolish ends.

But, even if Congress may be presumed to have been completely indiscriminating and even whimsical in this matter, public utility commissions are still bound by their clear responsibility in the premises; it is the duty of regulation to see that utility rates and earnings cover the full operating and capital costs of enough efficiently provided utility service, and that they do not exceed this level. If Congress provides that through manipulation of the depreciation accounts tax costs are reduced without reflecting the reduction in the cost accounts on which rates are computed, and if regulation should go along with the mechanics of the scheme, regulation would not meet its clear functional responsibility to society unless it also ordered a compensatory reduction in the rate of return allowed to capital. After all, enough is enough!

action. It cannot be doubted that this choice by management is a proper, indeed a necessary matter for regulatory concern; and it is the position of this paper that it is the firm duty of regulation to relieve users of the unwarranted burden which such a choice forces them to bear. This conclusion is as clear as though the decision of management had been deliberately to turn its back on any other saving in operating costs.

It may be argued in favor of a choice by management not to set the stage for lower rates by making use of the accelerated depreciation provision of the income tax law that "consistency" should be maintained between depreciation for rate-making and depreciation for the calculation of income tax liability. May I suggest that any such consistency is quite synthetic; it is forced and functionless where, as here, we are considering depreciation not in its ordinary context but as an instrument employed to implement a program of tax reduction. There is no necessary, functional relation between such a concept of depreciation and depreciation as an instrument for distributing the cost of capital over those who benefit from its use. It is worth bearing in mind that the effectiveness of utility regulation has been impaired since its inception by the unfortunate injection of the term "fair value" into rate proceedings and the consequent confusion of "value for rate making" with "market value" and with "value" for other purposes—concepts utterly different in content and purpose from "rate value." It would be equally unfortunate if in the matter of accelerated depreciation we were to confuse two quite different concepts of depreciation and mistakenly to insist upon an operating identity where in fact no conceptual identity exists. Above all else, let the issues in this con-

troversy be decided upon substantive not verbal considerations.

The basic argument in support of a utility position not to employ accelerated depreciation to reduce tax liability would seem to be that the financial standing of the utility would be injured if the tax reduction were taken and, at the same time, investors were not assured that the company would be protected, through present earnings and rates, from future tax liability to which the company would be subjected if (a) the income tax law were changed to withdraw the accelerated depreciation provision, or (b) the company's future investment outlay for replacement and expansion should decline below present levels. Let us consider the possibility that these eventualities will ensue, taking care to identify them, even in the extreme, only as possibilities—risks—and, by no means, as certainties.

It is quite true that the income tax law may change and that the privilege of tax reduction now extended may be withdrawn. But it is also true that the income tax law, or other tax laws, may change in many other ways to bring about either greater or lesser tax burdens in the future. The possibility of tax changes is one of the facts of life which must be faced by every business firm and investor (in fact, by everyone). It is one of the very ordinary risks of business enterprise, and certainly not peculiar to the utility industry or to the situation surrounding the use or non-use of accelerated depreciation. No one can ever be certain as to what a future legislature will do in the matter of taxes, any more than anyone (business firm or investor) can predict with certainty the future course of any other costs of doing business. As one of many business uncertainties that may be taken into account by regulation in setting rates which will attract capital,

the contingency of possible heavier taxes for whatever it is worth may appropriately be dealt with by the regulatory authority in calculating the return to be allowed on capital investment. Regulation will do well to keep in mind, however, just as any informed investor will keep in mind, that taxes in the future may fall as well as rise and that, in any event, any added burden of taxes is bound, under effective regulation, to be transferred to the user of the utility service. To argue otherwise is to assert the inherent indifference or incapacity of regulation as an institution. It can scarcely be asserted that present regulation should consciously forego a rate reduction justified by a reduction in costs because future regulation might inadvertently fail to reflect a possible cost increase in higher rates. It should be added that for the utility to insist that present users should be required to bear the certain burden of heavier taxes than are required by the income tax law presently in effect in order that future users may be relieved of the *uncertain* burden that might develop if tax laws in the future should be changed adversely and if future regulation should fail in its duty, is to exhibit a really rare, even if misdirected paternalism. It is difficult to refrain from inquiring why the company is concerned for users who, only if the most adverse possibilities are realized, will be burdened, rather than for present users who, if the utility policy not to use accelerated depreciation is validated, will be forced in certain fact to bear the burden—a burden which, under the law, no user, present or future, need necessarily be called upon to bear.

In further support of the position against use of accelerated depreciation the argument has been advanced that the tax "saving" provided by the law may become only a tax "deferral" if

economic conditions in the future should force a decline in utility operations and a consequent falling off in money expenditures for capital installations. The possibility of this dire consequence, with a resultant increase in utility tax liabilities, will, if it is asserted, cause an impairment in the standing of utility securities in the capital market unless regulation now permits the utility management to pay full rather than "adjusted" taxes.

Here again is a typical business risk which regulation will naturally take into account in setting a return on investment that will prove attractive to capital. May I suggest that the risk is not likely to strike potential investors as great? With growth of population a certainty, with increased demand for utility service almost a certainty as the nation develops and prospers economically, and with the probability much greater that the general level of prices will increase rather than fall in the years ahead, it is just short of inconceivable that future dollar capital expenditures of utilities in the United States will decline and that tax savings realized under the accelerated depreciation provisions of the present tax law will become a liability. Utilities themselves are the first to insist—and convincingly—that their future holds great need for capital; indeed, this very need is advanced as a reason why potential investors must be surfeited with assurance. And utility managements have been among those most positive in their assertions that increases in general prices must be expected. The chance that the dollar investment in utility property will shrink in the years ahead can be rated realistically as no greater than a minimum contingency. It can be added with confidence that, if the risk of a decline in utility fortunes is really great enough to matter, its impact on potential investors will not be appreciably greater by reason

of any possible increase in income tax liability growing out of a decision to take advantage of lower taxes at present. If investment in any utility declines because business is bad and "deferred" taxes become a current liability, income too will be impaired and taxes will be low in amount. It is sad to contemplate such a prospect; it is reassuring to realize that, in the capital market, no one does. To the extent that realities require this "risk" to be considered in rate proceedings, it can be dealt with quite adequately as other investment risks are dealt with—in the calculation of the appropriate return to be allowed on capital investment.

As to the attitude of the law toward the proposal to require utility managements to use accelerated depreciation and to pass the consequent tax savings along to ratepayers, only actual tests in the courts can give a conclusive answer. This, of course, has been true of each step in the development of the regulatory process from the very beginning and it will be true of each new step in the future; it is not peculiar to the instant issue. On the basis of constitutional decisions covering the general issue of regulation versus management, however, and specific court rulings on such matters as operating expenses and the use of constructive in place of actual capitalization structures in determining returns, it can be stated categorically that accepted constitutional doctrine can accommodate without the slightest strain the course of action here proposed. No confiscation of property is in issue (full compensation for costs necessarily incurred is of the very essence of the proposal) and the administrative discretion involved seems well within the limits which legislatures and courts have staked out as necessary for and appropriate to the performance by commissions of their appointed regulatory duties. It does not seem too presumptuous to pro-

ceed on the theory that economic sense makes legal sense as well; it is fair to predict that, in due course when the specific issue raised by the required use of accelerated depreciation coupled with the flow-through of tax savings is judicially reviewed, the truth of the theory will be reflected in the determination.⁶

The great burden of the argument advanced to justify the determination of

⁶ See footnote 4, *supra*. For whatever they may be worth as precedents, there are scattered cases in which courts have refused to force commissions against their own judgment to compute rates on the basis of tax savings that would have resulted from the use of accelerated depreciation where the utility, having been denied the privilege of "normalization," has reverted from the use of accelerated depreciation to the straight-line basis. See the Bell Telephone of Canada case cited in footnote 5, *supra*; and *City of Pittsburgh v. Pennsylvania P.U.C.*, No. 344, Superior Court of Pennsylvania (September 11, 1958). In the latter case, although the Superior Court refused to reverse the Commission, it commented that "the outspoken attitude of [the utility] that it reverted to the straight line method because it could not retain the benefits of accelerated depreciation is unbecoming to a public service company." (p. 17, mimeographed opinion.) What are still lacking, however, are definitive court rulings on the validity of commission findings such as that in the recent Bangor-Hydro Electric Company case where the Maine Commission held it to be an abuse of managerial discretion for a company which had been refused permission to "normalize" its taxes thereafter to revert to a straight-line basis. The Commission disapproved a proposed rate increase, holding that rate regulation cannot be frustrated by the imposition of unnecessary costs on rate-payers. (Case noted and briefly discussed in *Public Utilities Fortnightly*, February 26, 1959, p. 345.)

disappointed utility managements to pay and to charge present consumers for tax costs greater than the law presently requires to be paid seems to be that unless present consumers are required to bear the *certain* burden of greater taxes, the company (and/or future consumers) are threatened with a *possibility*, however slight, of greater taxes sometime in the future. It may be pertinent to recall the protest which utilities have voiced with great vehemence throughout the past decade against the so-called "regulatory lag"—the term applied to the failure of regulation to raise rates rapidly enough to cover the burden of rising costs. In the present instance the income tax law offers an opportunity for reduced tax costs and hence, for lower rates. I suggest that a utility which chooses not to reduce its tax payments and so to enable rates to be reduced, on the ground that such a program *might* increase tax costs (recoverable tax costs, at that!) in the future, is really embracing with shameless enthusiasm its own special version of the regulatory lag. Regulation, by its very logic as an institution, should have none of it.

The Significance of Land-Use Changes in the Economic Development of Mexico

By EDMUNDO FLORES*

DURING the last four decades land utilization in Mexico has changed and evolved rapidly toward highly complex patterns. This process began in 1915 with the land reform which, through the redistribution of land ownership, brought momentous changes in land use. It was intensified by the combined effects of public works, urban expansion, the emergence of the construction industry, and population growth. Recently it acquired additional impetus by overall industrial development.

In turn, through trial and error, the changes of the locational pattern oriented and conditioned the process of development by pointing out, step by step, the immediate course to follow, in view of the effects that previous horizontal and vertical expansion had had over resource availability and use and, ultimately, over the general rate of capital formation.

Although all the aforementioned agents of change deserve analysis, emphasis here is placed on the interrelation between public works and metropolitan growth on one side, and land-use changes on the other. But even if inquiry is thus restricted, it is still essential to start from a general frame of reference.

The key to the understanding of modern Mexico is to realize first, that the triumph of the 1910-1917 revolution imposed a new social order and second, that this order lacked an economic foundation. Since then the main goal of economic policy has been to create a productive structure compatible with the new social principles and capable of supporting and of perpetuating democracy.

It is not surprising that the people of a backward agrarian economy, plagued by land ownership concentration, extreme income differences and resource waste, should be obsessed by the possibilities of land reform. Under such conditions, what else is there to start from? Perhaps this explains why agrarian reform was the primary weapon on which the Mexican Revolution relied to achieve economic freedom and social equality. Since 1917 when land reform became a constitutional mandate, successive administrations have redistributed approximately 124 million acres of all types of land (more than 50 percent of total productive land) among close to 1.9 million peasants, or about 10 million persons, including families who were landless. At the same time property rights for "small holdings"¹ were confirmed and amount roughly to 120 million acres.

The Revolution had another effect which in its initial stages was perceived by few Mexicans: It opened the country to overwhelming innovational forces. Mexico shed the inertia of the colonial period to enter the cosmopolitan stream of the twentieth century.

Unwittingly, the conditions for the industrial revolution had been fulfilled. The barriers to economic growth were shattered. Under the new status technological progress became an imperative for survival. In spite of the limitations of official policy and irrespective of the narrowness and simplicity of its avowed propositions, its effects spread to some of the most remote corners of the land and

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¹ That part of the hacienda which was exempt from expropriation when agrarian laws were applied, usually from 250 to 350 acres of irrigable land or its equivalent.

prompted multiplied second thoughts which gradually expanded the scope of economic policy and gave it greater cogency.²

The experience of Mexico indicates that land reform should not be viewed merely as an undertaking ruled by farm management considerations and limited to the partition of large estates. Contrary to this narrow and static idea, land redistribution ought to be conceived primarily as a strategic move: a catalyst that, in a chain reaction process, changes the patterns of income distribution and of resource availability and use, alters the structure and composition of demand and supply, has a deep impact upon the rates of population growth and of capital formation and, in general, releases forces that affect the relevant variables of an economy.

Fears of a sudden production drop due to technological regression are unwarranted. It would be difficult indeed to depress any further the output of lands ridden by absenteeism and operated at primitive technological levels under non-wage, traditional arrangements thoroughly devoid of built-in incentives for individual or collective improvement. Insecurity of tenure may lead to the stopping of production in many places

but this drawback can be avoided by an explicit and precise definition of the terms of land redistribution and by the swift transference of property rights.

Outside the sphere of conventional economics but well into the realm of political economy, land reform can be credited with being the most important single factor responsible for the political stability and the peaceful transference of power which Mexico—notorious for her former political truculence—has enjoyed during the last three decades. On the social front the land reform tore to pieces the caste system under which the possibilities for individual betterment were negligible. Hence it made possible the adoption of modern technology and the creation of a mass market.

Without the agrarian revolution Mexico would probably be today in a similar situation to that of contemporary Colombia, Peru or Venezuela. There would be good roads leading from ports to mines, oil wells and plantations: Industry and farming would show development along a few specific lines. One would find urban expansion, Hilton hotels, air conditioning, supermarkets, funiculars, submarines and other conspicuous innovations. Subject to distortions and with a considerable lag, the economy would display in spots a semblance of technological sophistication but there would be little or no evidence of the social fluidity that accompanied the industrial growth of the advanced nations. Mexico avoided this chromium-plated dead-end because, irrespective of the deficiencies of the ejido³ and of the small-holding, massive land redistribution forced the way for concurrent social and economic improvement.

² For instance, Nacional Financiera was founded by the government in 1934 with the modest purpose of being "an organization prepared in every way to undertake and carry out quickly and effectively the direct sale or the division and settlement of the real property included in the assets of official banks The institution may also plan and put into effect schemes of land settlement and colonization." (Decree authorizing the foundation of Nacional Financiera, *Diario Oficial*, August 31, 1933, pp. 753-755.) Its authorized capital was 20 million pesos (5.7 million dollars). In 1940 its purposes were revised and became the inspection and regulation of the securities market and the promotion of industrial development. In 1941 it launched its first issue of *certificados de participación*, which resemble shares in trust funds. In 1947 its authorized capital was raised to 100 million pesos (20.6 million dollars); in 1955 to 200 millions (16 million dollars). On August 31, 1958, the aggregate value of the funds mobilized by Nacional Financiera amounted to 8,493.3 million pesos (679.5 million dollars) which, through long-term credits and the purchase of securities, were used to finance basic industries: iron and steel, electricity, fertilizers, transportation, etc.

³ The term ejido refers to an agrarian community which has received and holds land in accordance with the land reform laws. See, Eyer N. Simpson, *The Ejido: Mexico's Way Out* (Chapel Hill: The University of North Carolina Press, 1937), and Nathan L. Whetten, *Rural Mexico* (The University of Chicago Press, 1948).

Before the Revolution there were two conflicting explanations of Mexico's poverty. Both stemmed from the premise that the country was intrinsically rich. But, while the landed elite attributed the prevailing backwardness to the Indians' inferiority, indolence, and so forth, the landless Indians put the blame on the landlords.

The triumph of the Revolution put to test the second version and it did not quite work out. When landlordism was outlawed and haciendas began to be divided among the peasants, food shortages ensued in the urban centers. Why did this happen? Food became scarce in all probability because the peasants began to eat more, as suggested by the sudden decline of child mortality which reversed a long previous trend of slow population growth. But the fundamental reason is the one glimpsed by Cosío Villegas "... the Revolution realized very late that the land reform meant more than just breaking up the latifundium and giving it to the peasants. This is shown impressively by the fact that the first credit institution for the new agriculture and the first attempt to reform agricultural education came in 1925, that is ten years after the first agrarian law."⁴ The highway construction policy also began that year and the irrigation policy one year later. This creative spurt suggests that the government had finally begun to question its naive, static resource theory which equated the elimination of the landlords to the spontaneous emergence of wealth. Instead, within the new social framework, the state began to fill the vacuum left by the old agrarian structure: not at the former tradition-directed level but through planning, financial, managerial and educational activities aimed at the removal of limit-

ing factors to increased food production—a dynamic approach which led to agricultural and industrial development.

The government began its public works policy with an empty treasury and without recourse to foreign capital. The latter had been scared away by the nationalization of lands owned by foreigners—to be followed shortly by the oil expropriation. The only way out was deficit financing and from 1925 to 1947 public investment came totally from internal sources. In the short-run the regressive effects of forced savings were partially counterbalanced by the real income increase of the peasants who received free land grants.⁵ Later reliance was placed on the quick growth of the national product. In due course foreign capital returned once more and since 1948 it has accounted for around 10 percent of total gross investment. Population growth reached 3 percent annually, employment increased, a middle class and a new elite emerged. The latter was formed by the coalescence of the first and second generation of the *revolucionarios* with the avowedly conservative, but adaptable, remains of the aristocracy. As a further proof of the newly acquired social fluidity, the *revolucionarios* now appear in the guise of elder statesmen, bankers, industrialists, top bureaucrats and intellectuals, while the old aristocracy that salvaged and later increased its urban real estate wealth has merged with the newer families bringing to them the patina of old family names.

Meanwhile inflation has turned into devaluation with distressing regularity—

⁴ In backward agrarian countries income from land is the chief source of wealth and ownership of land the prevailing standard of income distribution. Land reform amounts to the adoption of a new pattern of income distribution: a capital levy to few landlords split among many peasants without impairing the productive potential of land but rather adding incentives for extra labor inputs and increased yields. At this juncture the government may step in and take a share of the income rise, either by tribute in kind or through forced savings.

⁵ Daniel Cosío Villegas, "La Crisis de México," *Extremos de América*, (Mexico, Tezontle, 1949), p. 26.

approximately every seven years on past averages—without even the righteous alibi of a heavy defense budget. Leading Mexican economists diagnose a fundamental disequilibrium of growth, set in by the concurrence of an inflationary gap, inelasticity of food supply, income maldistribution and the growing demand for imported capital equipment.⁶

The public works policy acquired momentum in the early thirties. Since then, more than half of total public investment has been allocated to roads and irrigation projects. Forty-six thousand miles of roads were added to the existing twenty-seven thousand—and the latter were improved—to make up a total network of close to seventy-four thousand miles of roads of all types, railways included. This called for a total gross investment of 9 billion pesos.⁷ At the same time, 4.4 million acres of irrigated land were added to the existing 1.7 million acres, to make a total of 6.1 million acres of irrigated land. Gross investment in this case amounted to approximately 7 billion pesos.⁸ The investment sustained in such proportions for nearly three decades is a strategic innovation. Its all-pervading effects can be traced meaningfully at two distinct levels: Level *a* deals with its generating and multiplier effects over the investment, industrial, employment and consumption sectors. Its discussion would bring to light in detail the account of Mexico's industrial revolution—not the subject of this paper. Level *b* deals with its spatial effects and with the consequences of the emergence of a new locational pattern.

Economic Development and Land-Use Changes. During an intense process of

economic growth, land utilization undergoes spectacular changes. The pre-industrial pattern, which came about when nature was overwhelming, is subject to simultaneous and disparate pressures exerted by the new and varied use possibilities inherent in modern technology. Concepts such as optimum location or fertility become elusive since the new margins of substitution and the possibilities of duplication invalidate notions built upon attributes supposed to be static. The usefulness of space becomes associated with new functions which, far from depending on Marshall's "free gifts of nature," are linked to man-made circumstances, to individual wants and to social objectives. Technology makes possible the removal of many previous resistances to land-use. Sanitation, pest and disease control render areas usable that before were void. Irrigation and efficient transportation and communication facilities convert frontiers and remote hinterlands into integrated market areas. Constant and cumulative discovery of more uses for old and new materials shifts the optimum site of previously established plants. The land utilization pattern assumes a new dimension as vertical deployment is added to horizontal spread. Principal land uses achieve unprecedented degrees of intensity and at the same time become exposed to rapid obsolescence.

In a laissez-faire economy the study and control of land-use shifts offer serious difficulties because these happen as the unintended results of innumerable decisions of innumerable entrepreneurs and consumers. The case is more simple where large controlled investment plays an important role. Research here can more easily trace the stream of investment and furnish an essential indicator or better, a feedback to reveal its course and impact over a backward spatial pattern.

⁶ See, Horacio Flores de la Peña, *Los Obstáculos al Desarrollo Económico: El Desequilibrio Fundamental* (México: Escuela Nacional de Economía, 1955), and Juan Noyola Vázquez, *Desequilibrio Fundamental y Fomento Económico en México*, (México: Escuela Nacional de Economía, 1949).

⁷ Amounts not adjusted for changes in purchasing power.

⁸ Amounts not adjusted for changes in purchasing power.

Hence it offers many opportunities to avoid resource waste and to accelerate rates of growth.

To achieve this purpose attention should be focused and policy should be operative at two critical margins: margin *a* lies where certain land-use shifts beneficial to individuals go against social welfare, for instance, when the exploitation of flow resources is carried close or beyond irreversibility; margin *b* lies at the level where public investment causes detectable land-use shifts that attract complementary investment from the private sector. Knowledge of the conditions under which public investment induces private capital to cash in on external economies may lead to the maximization of rates of capital growth.

Land-Use Changes in Mexico. Critical land-use changes began at the Mesa Central, the seat of ancient cultures and the most fertile and densely populated region of Mexico. In 1910 it accounted for 6.5 million people or 40 percent of the total population. Ten of the Principal cities, Mexico City, Guadalajara, Puebla, León, Queretaro, Morelia, Aguascalientes, Orizaba, Jalapa and San Luis Potosí, as well as many of the important mining centers such as Pachuca, Guanajuato and El Oro, depended directly upon its agriculture. Molina Enríquez called it the main zone of grain crops—"a region which produced enough maize, beans and wheat to cover the food deficits of the rest of the country."⁹

Food surpluses were produced despite the fact that the haciendas were too vast to be operated intensively and large areas were left completely unused. As McBride observed in reference to the Mesa Central: "With intensive cultiva-

tion the broad acres might be made to yield a large income; but with an absentee owner, a hired administrator, and poorly paid peons, the typical Mexican hacienda yields little more than enough to feed its numerous population. The economic value to the owner lies rather in the supplies which it furnishes, the cheap service which it provides for his household, and the amount of money which he can obtain on a mortgage."¹⁰

The towns of the Mesa Central were linked to the rest of the country by two railways which connected the northern border with Mexico City, and the Mexico City-Veracruz railway which led to Mexico's most important port. In addition, there were some 8 thousand miles of dirt roads and about 4 thousand miles of cobblestone roads. In effect, transportation facilities were extremely limited in the case of the railroads and otherwise quite primitive.

The main zone lost its role as a stagnant urban seat and an extensive grain-producing area and rapidly climbed the land-use hierarchy when submitted to the simultaneous pressure of the powerful centripetal and centrifugal forces generated by the Revolution, the land reform, the public works policy and metropolitan expansion. As utilization was intensified, land-use patterns became more compact and the whole region began to turn into a complex kaleidoscope of urban, industrial, residential, recreational and agricultural uses, though occasional pockets of rapidly disappearing subsistence uses still can be found.

Metropolitan Growth. The Revolution and the land reform made people flee to Mexico City, to the neighboring towns of the Mesa Central and to the United States in search of security. This was the first step of a steadily mounting exodus

⁹ Andres Molina Enríquez, *Los Grandes Problemas Nacionales*, (Mexico: Imprenta de A. Carranza e hijos, 1909), pp. 8, 14-16.

¹⁰ George McCutchen McBride, *The Land Systems of Mexico* (American Geographical Society, Research Series No. 12, 1923), p. 38-39.

from country to town. Under the new order the peasants were free to go anywhere. Often the ejido failed to support large families. The misfit and the enterprising peasants, motivated largely by "push" reasons,¹¹ migrated to Mexico City, to the newly opened lands of the northern frontier or to the United States.

Metropolitan congestion became a steady feature and the generator of mounting social and political pressures for industrialization and welfare. In a few years the housing problem of the poor became critical, the prosperous new elite exercised a huge demand for luxury housing and the government undertook the construction of imposing public buildings and the modernization of the capital city. Residential and industrial uses spread incessantly towards the rural fringe squeezed out by the rapidly maturing, shifting and expanding land uses in the center. Mexico City's population increased from 368 thousand inhabitants in 1900 to an estimated 4 million today. Land speculation which soon after the Revolution had been a source of large profits and a cushion against inflation was complemented later by the speculative construction of houses, apartments and office buildings and by the development of shopping centers and complete housing projects.

The original proprietors of urban real estate were the members of the old landed elite; but, whereas the haciendas had been expropriated virtually without compensation, urban properties were spared and their value multiplied at a terrific rate. Hence, when the system began its upward movement a few years after the

forced capital levy of land reform, the landlord class became again the receiver of even larger rents from urban real estate holdings. Metropolitan expansion and sharply competitive land-use shifts at the intensive margin required and entailed high rates of capital formation. The total economies derived from urban growth exceeded by far the partial diseconomies produced by the bottlenecks which came with the emergence of the new pattern. But, while the massive migration from country to town kept wages low and depressed labor's share of total income vis-a-vis a rising price level, rents and capitalized land values absorbed a correspondingly larger share in the absence of land taxes and of adequately progressive income taxation. Rent control for low-income housing was enforced but it only froze land-use shifts and assured the complete dilapidation of the houses it covered.

The huge demand for construction industry materials generated jointly by public works and urban expansion assured high returns to investment. The conditions for the emergence of the construction industry were fulfilled and high rates of capital formation ensued, in line with Lewis' assertion that "... the expansion of capital is a function of the rate at which the building and construction industry can be expanded."¹² Basic industry, cement, iron and steel, glass, was financed with savings from real estate fortunes complemented by credit from the public sector. The landed gentry finished its metamorphosis and left the dormant rentier stage to graduate into the managerial class. Privately owned factories were located near Mexico City or other urban centers to take advantage of overhead facilities, labor availability, and the proximity of the

¹¹ See, Wilbert E. Moore, *Industrialization and Labor: Social Aspects of Economic Development*, (Ithaca and New York: Cornell University Press, 1951). Part II, "From Peons to Industrial Workers" reports the findings of a field study made in rural Mexico to investigate the motives behind occupational shifts.

¹² W. Arthur Lewis, *The Theory of Economic Growth* (London, England: George Allen & Unwin Ltd., 1955), p. 208.

market. As a rule, only government financed projects pioneered into new, out-of-the-way locations.

World War II speeded up industrial growth. High export prices for domestic raw materials and shortages of many previously imported goods provided unusual incentives for further expansion. The war also created favorable conditions for the consolidation of the petroleum industry which had been boycotted after the 1938 expropriation. Light industries were added to the construction industry and fairly diversified industrial compacts emerged in the outskirts of Mexico City and Monterrey. Petroleum production increased 4.5 times since the expropriation but instead of being exported, as before, it was consumed internally. As transportation facilities improved and the number of motor cars increased, conurbations spread and merged with or absorbed old satellite centers. "Push" reasons for migration were reinforced by the "pull" attraction of urban modes of life.

Land-Use Shifts on the Rural Areas of the Mesa Central. Maize is the most important single item in Mexico's diet, cuisine, mythology and politics. It is a basic need, a mother image, a phallic symbol, a dietary obsession and a nightmare for the minister of agriculture. It is as if Mexico's ancestral backlog of hunger could be expressed only in terms of corn. Wherever there are Mexicans and water there is maize. About its location all that can be said is that it is ubiquitous. Yet upon analysis it reveals acute differences. "More than any other crop plant, maize is a sensitive mirror of the people who grow it. . . . For at least seven hundred years, the maize of western Mexico has been markedly different from that of the Mesa Central. Modern commerce may have blurred this boundary, but it has

not obliterated it."¹³ For the economist, maize grown on irrigated lands is altogether a different crop from that of dry-farming areas: the latter is for subsistence, the former is subject to peculiar pressures because in an attempt to offset somewhat the decline of real wages in the Federal District, the government has kept down prices paid to farmers. In view of the free competition of alternative crops and land uses this policy either forces the adoption of improved seeds and of better farming practices and therefore brings forth a different production function or else maize is displaced to marginal lands.

As the impact of metropolitan growth ran through the Mesa Central, intensive land utilization supplanted extensive grain culture wherever ecological limitations or institutional blocks were not in the way. A dairy belt emerged in an irregular area with an average radius of roughly 150 miles from the city. Here, half a million cows—fifty percent of the country's dairy cattle—supply the city's growing demand. Today this is a region of intensive grain culture and alfalfa. The grain crop is shipped to the cities while maize forage and alfalfa are fed to cattle. Wherever possible, submarginal lands are still planted with maize in continuation of the same archaic "milpa" system that upsets conservationists and intrigues social anthropologists so much. In the same radius, towards the south, sugarcane, rice, fruits, fresh vegetables and flowers are cultivated. Within the spatial context provided by the demand of the metropolitan market and of the near-by satellite cities and by the network of transportation, their location is dictated by the principle of first choice. Likewise, recreational uses have spread

¹³ Edgar Anderson, "An Intensive Survey of Maize in Tepoztlán," in Oscar Lewis, *Life in a Mexican Village: Tepoztlán, Restudied*, (Urbana: University of Illinois Press, 1951), p. 449.

and become firmly localized as the urban population and tourists exert a growing and highly rewarding demand.

Irrigation and Roads. Lack of water and communications had kept the northern frontier barren. The railroads built from 1873 to 1910 intensified mining, forest exploitation, and cattle raising but could do little to spread farming from the rigid pattern set by ecological limitations. In order to settle the northern lands and to develop agriculture the construction of dams had to be preceded by access roads and followed by transportation outlets.

People followed roads and dams in their northbound quest, in part attracted by their promise of employment and prosperity, in part rejected from the Mesa Central because of the congestion and low living standards. New towns mushroomed in the desert. Old colonial settlements threatened to turn into ghost towns but often their deterioration was arrested because, instead of their original functions now obsolete, they began to service the growing flow of motorists from the United States.

The new lands were planted predominantly with cotton for export (41 percent of total acreage for the period 1944-54); with maize (22 percent average acreage for the same period) and wheat (19 percent of total acreage). World War II, Korea and the United States Department of Agriculture price support policy, before the dumping of cotton surpluses began in 1956, kept cotton prices at high levels while the successive peso devaluations placed exporters in a favorable competitive position. Altogether, cotton acreage rose five times from slightly more than half a million acres in 1934-35 to 2.5 million acres this year. Sales abroad rose from 2.5 percent of total exports worth 5 million dollars to 25 percent of total exports worth 303.5 million dollars.

Maize, wheat and beans acreage also increased substantially¹⁴ but the most spectacular rates of growth are shown by fruits and vegetables for export to the nearby United States market.

The growth of towns has been phenomenal. Mexicali grew from 18 thousand people in 1940 to 65 thousand in 1950, to an estimated 180 thousand today. Tijuana, Hermosillo, Ciudad Juarez and Culiacan show slightly lower rates of growth.

The Tropical Lowlands. As the tropical areas of the southeast and southwest are rendered accessible by new roads, flood control works and sanitation campaigns to eradicate malaria and other endemic diseases, they become quickly integrated into the metropolitan market area and the international markets. The coffee boom of the post war years has resulted in considerable increases in acreage and production for export.¹⁵

A crucial question remains to be answered. How has this process affected the living standards, the distribution of real income and the levels of employment of the Mexican people?

It has already been emphasized that the cost of the initial stage—land reform—was paid by the landed gentry. Thereafter, the peasants and the growing industrial labor force were the ones who footed the industrialization bill through low agricultural prices, low wages and regressive taxation. The first installments for public works, construction industry and urban expansion were paid wholly by agriculture. But as the industrial labor force became larger, low wages and high returns to investment

¹⁴ See, Jacques Chonchol, *Los Distritos de Riego del Noroeste: Tenencia y Aprovechamiento de la Tierra* (Mexico: Instituto Mexicano de Investigaciones Económicas, Centro de Investigaciones Agrarias, 1957).

¹⁵ The Ministry of Communications and Public Works has published detailed monographs concerning the impact of public works in this region. See for instance, *Estudio Económico Regional: Camino Cardel-Nauilla*, (Mexico: Secretaría de Comunicaciones y Obras Públicas, 1958).

contributed to form additional capital. Soon, however, labor unions, manufacturers and urban dwellers combined their superior bargaining efforts to embark the government in a policy of cheap food prices. At the same time agricultural exports were heavily taxed. Hence, a good share of the cost of industrialization reverted to agriculture.

The agricultural sector was able to withstand this drain without sinking into subsistence levels—although this happened in localized food producing areas—because, on the one hand, total agricultural income increased due to expanded and more intensive land utilization (the direct and induced effects of public works, agricultural credit and urban expansion) and to high prices for agricultural exports, and on the other, the percentage of working population engaged in primary production dropped from 90 percent before the land reform to around 52 percent today.

López Rosado and Noyola analyzed the course of wages for the 1939-1950 period and disclosed statistical evidence of a substantial decline in purchasing power. At the same time they advanced an explanation to "confirm the hypothesis that the wage earning classes have received a share of the increase of total product . . . as seems to be indicated by their increased consumption of food, clothing and certain durable goods . . ." ¹⁴ They argued that, although if viewed statically real wages for specific activities have gone down, this trend has been amply offset by successive waves of real income increases, generated and enforced by the rapid expansion and higher intensity of farming and by the accelerated shift from primary to secondary and tertiary activities.

Following their argument, in the agricultural sector real income increased *directly*: first, because of the transition from extensive to intensive farming on the same land and second, because of migration and settlement in the irrigated frontier. Besides, it increased *indirectly* because massive migration from rural areas reduced the size of the family that lived from the ejido or the small plots, therefore, increased the consumption, or the surpluses, of those who remained there.

In the industrial sector, displaced farm population was employed as expansion created new jobs. At the same time, experienced workers climbed rapidly the "occupational ladder," either by promotions in the same business or within the same industry or by becoming independent entrepreneurs themselves. Such upward process entailed substantial increases of real income. During this period there has been a high premium on experience, tested reliability on labor and personal relations, and on literacy.

There have been other shifts with similar effects: women are being rapidly incorporated into the labor force at different levels, including the professions; domestic services have become more expensive due to the competition of industry. In general, the living standards of a considerable sector of the total population have improved and the size of the labor force has increased at a fast rate but it is still far from reaching full-employment levels.

In conclusion, the changes in land utilization reveal a new, dynamic and diversified structure, endowed with a high production-potential and a vastly increased resource quantum. This spatial pattern is the concrete, measurable seat and vehicle of a fluid social organization open to economic inducement and to individual and group initiative.

¹⁴Diego G. López Rosado y Juan F. Noyola Vázquez, "Los Salarios Reales en México 1939-1950," *El Trimestre Económico*, April-July, 1951, México, p. 206.

The positive mutual interaction between the spatial and the social and occupational patterns leads to expect more intensive all-around resource utilization, increasing external economies, and higher rates of capital formation, with the same assurance with which one can predict the emergence of more tall buildings in the soft, sinking, ground of downtown Mexico City. The same complex, positive interaction may be taken as strong evidence that the cumulative momentum of growth has reached a self-propelling stage.¹⁷ If this is true, then the completion of an adequate agricultural and industrial organization will be largely a matter of time and routine. Strategic links, now missing, will be added simply because it will pay to do so. The reticence of investors, public and private, domestic and

foreign, will be overcome more easily than it was in the not too remote unorthodox beginnings. Far from being at the verge of diminishing returns—as rejoicing neomalthusians now anticipate—the economy will have entered the stage of increasing returns. Innovations which are commonplace in other countries will be adopted and adapted as a matter of course. As the built-in pressures for sustained growth react upon each other and lift the levels of performance and productivity, high rates of population growth will be absorbed and will provide additional thrust for the upward ascent.

All of which means, in the last analysis, that the economy will have swapped a set of well-known secular problems for a newer, more perplexing and certainly more unstable assortment—but perhaps there will then be enough maize for everybody.

¹⁷ What W. W. Rostow calls "the take-off into sustained growth." See, *The Process of Economic Growth* (New York: W. W. Norton & Co. 1952), pp. 19, 71, 102-106. Also Gunnar Myrdal, *Economic Theory and Underdeveloped Regions* (London: Duckworth & Co., 1957).

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Maximum Freight Rate Regulation and Railroad Earnings Control

By MERRILL J. ROBERTS*

INTEREST of carriers, shippers, government agencies, and students of transportation has generated substantial discussion regarding appropriate guidelines for regulatory determination of minimum rates.¹ The maximum side of rate control has had much less recent attention. Although arising in other settings as well, the problem of maximum rate limits presently comes into sharpest focus in connection with general rate advance cases. A recent proceeding of this nature, designated by the Interstate Commerce Commission as Ex Parte 206,² poses particularly interesting problems. This paper sets forth the main features of general revenue cases manifested in the Ex Parte 206 and similar proceedings in order to evaluate the role of regulation and the Commission's performance in establishing rate ceilings in connection with earnings control. Since the anticipated dollar proceeds of these cases are often calculated in the billions, they are of major concern to economists generally as well as to carriers, shippers, and the consuming public.

The Ex Parte 206 Case

On September 27, 1956, the Eastern and Western Territory railroads applied to the Interstate Commerce Commission for authority to increase freight rates,

with certain exceptions, by 15 percent. Unlike the series of earlier postwar cases which had emphasized "cost of living" increases designed to compensate the carriers for rising supply prices, this application emphasized the inadequacy of railroad rates of return on invested capital and directed attention to what was regarded as a chronic and deep-seated maladjustment between railroad revenues and costs. As a result of subsequent developments, however, the "cost of living" aspect was interjected. In order to cover realized or immediately pending cost increases the railroads amended the original petition on January 17th to raise the requested increase from 15 to 22 percent. Of this amount, 15 percent was in effect directed toward the basic maladjustment and 7 percent toward the higher costs. Meanwhile, the Southern Territory carriers, who were not parties to the original rate of return petition, became involved in the cost of living aspect by requesting authority for a 15 percent emergency increase.

On August 6, 1957, the Commission handed down its final decision, granting overall increases somewhat below the 22 percent requested in the East and West and the 15 percent requested in the South. Class rates might be raised by 12 percent throughout the country. Increases in other rate categories were restricted to 14 percent in the East, 12 percent in the West and between these two territories, and 9 percent in the South and between this region and the remainder of the country.

In general, two basic issues are raised in revenue proceedings such as Ex Parte 206. The first involves the efficacy of the

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¹ Much of this discussion stemmed directly from a Cabinet Committee report proposing changes in regulatory policy. Presidential Advisory Committee on Transport Policy and Organization, *Revision of Federal Transportation Policy* (1955), commonly known as the Weeks' Committee Report.

² *Increased Freight Rates, Eastern and Western Territories, 1956, Ex Parte 206*, 229 I. C. C. 429 I. C. C. 557, and 300 I. C. C. 633.

rate increase, or whether it will have the desired effect of improving the carriers' revenue position. This poses the question of the level of support for the rail plant which the market can be induced to provide. The second issue concerns the propriety of the proposed increase, or the level of support which the market might properly under regulation be called upon to provide. Although the Commission does not explicitly frame and dispose of the issues in these terms, it is rather clear that the governing consideration in limiting the amount of the increase in Ex Parte 206 was attainable rather than proper market support. It was expected that the additional revenues over and above the actual cost increases would help the eastern and western railroads to implement their capital improvement and modernization programs. However, the Commission was "convinced that the full increase in freight rates sought by them would tend to defeat this objective."³ Concluding that a bigger increase would yield not more but less revenues the Commission escaped a conclusive consideration of whether the carriers should be allowed to reap additional fruits if they could do so, or the appropriate measurement of the revenue entitlement of railroads under regulation.

Efficacy of the Rate Increases

According to the railroad petitions, the purposes of the proposed increases were (a) to compensate for advances in supply prices and (b) to go beyond this and improve the long-run financial position of the industry. The common denominator of the two objectives is the realization of additional revenues from the rate advances. In this sense, the efficacy depends on the elasticity of demand functions. But rate increases might

well occasion increased income for the carriers collectively without substantially improving the position of those individual lines in financial difficulties, depending on the specific distribution of the revenue increments and revenue deficiencies among the firms. Accordingly, efficacy will be examined in these terms: (1) Will the rate increase yield the expected revenue increments? (2) If so, will this occasion any significant improvement in the cost-revenue position of the firms with revenue deficiencies?

Rate Increases and Revenue Generation. The conduct of the general rate cases represented by Ex Parte 206 clearly indicates that the achievement of some desired level of financial contribution through this medium is highly uncertain. The proceedings are litigatory monstrosities, with companies and Commission alike facing tasks that are impossible of fulfillment. The carriers must propose and defend a single percentage increase for virtually the whole range of their services. In view of the wide variation in demand elasticity and in the demand and cost function relations associated with individual services, no single percentage is defensible. The Commission is put in the same impossible position in its attempt to evaluate the percentage proposed and defended by the railroads.

The evidence adduced in the hearings must be highly generalized to fit the inescapably broad view of the market which this approach entails, even though specific markets are highly differentiated in important respects. Interest is focussed largely on the effect of the past general increases on traffic volume in various commodity classes. The Commission is highly impressed by shipper testimony threatening diversion of traffic to other agencies and by evidence of a decline in traffic volume in some commodity classes and in the railroads' share of the total

³ 300 I. C. C. 633, 686.

transport market. This preoccupation ignores the obvious fact that in some market segments higher prices and smaller volume may well yield higher gross revenues, and more particularly net revenues, than the reverse. It is elementary that the price which maximizes the contribution above direct costs (and therefore profits) will exceed the price which maximizes gross revenue. Gross revenue increases with successively lower prices to the point where marginal revenue equals zero; but at this price marginal revenue is less than marginal cost and the service is underpriced. The best price for building earnings is determined by the relationship between governing cost and demand curves in the specific market situation. An upward movement of the cost curve with the demand curve remaining stationary will generally dictate an increase in price although this may mean a smaller share of the market or even a smaller absolute volume.

Nor can price policy be sensibly evaluated without distinguishing between the traffic and revenue effects of changes in rates (as determined by demand elasticity) and of general economic expansion (which may be termed an increase in demand intensity) in particular market segments. With the secular increase in commodity output associated with postwar economic expansion the enlarged market is described by a rightward shift of the relevant transport demand functions. The demand shift means both that a larger output can be sold at the same price and that a higher price can be charged for the same output. This shift spells a higher maximizing price with the amount of the indicated raise depending on demand elasticity and the extent of the demand increase. The practical significance of these demand shifts is indicated by recent changes

in the size of the transport markets represented by the various commodity classes. As indicated in Table I, potential tonnage in 95 of the 256 classes increased by 25 percent or more between 1947 and 1954 with advances over 50 percent recorded in 37 classes.

TABLE I—DISTRIBUTION OF 1954 PRODUCTION INDEXES BY MAJOR COMMODITY GROUPS (1947 = 100)

Commodity Group	Number of commodity classes with indexes			
	over 200	150-200	125-150	100-125
Products of Agriculture.	2	5	7	17
Animals and Products..	0	3	3	7
Products of Mines.....	1	6	5	4
Products of Forests.....	1	0	2	5
Manufactures.....	9	10	41	45
TOTAL.....	13	24	58	78

Source: Bureau of Transport Economics and Statistics, Interstate Commerce Commission, *Fluctuations in Railway Freight Traffic Compared with Production*, Statement No. 570, January 1957, Appendix 1, Table 2.

Dealing broadly with a single hypothetical market, the general rate case is a completely inappropriate vehicle for developing the intricate demand and cost analyses that are required for specific markets. This must be done by the carriers as a management function and with management tools. Although the railroads have been notoriously remiss in developing and employing these tools to guide pricing policies this work has expanded rapidly in recent years. In any case the Commission does no better than the worst railroad efforts. While the market-by-market approach is clearly necessary at the management level, a single overall proceeding to elicit regulatory approval for broad scale rate revision in the interest of revenue expansion is highly advantageous. This means that the increase applications should be explicitly couched in terms of the *maximum* raise to be applied with subsequent analysis

and experience to guide and modify specific pricing actions. This, in fact, has been the essential character of past general increases with actual rate advances immediately or subsequently falling behind the amount authorized. Although reflecting changes in traffic make-up as well as rate movements, the indexes published by the Commission's staff show that the rate increases applied in practice are not at all uniform. The 1956 indexes for 66 classes (with 1950 as 100) ranged from 100 to 126 with nearly half of the cases in the extreme ranges over 120 and 110 or less.⁴

Despite the varying market circumstance and the ultimate differentiation of pricing actions the Commission imposes blanket limitations necessarily based on some meaningless measure of an average market reaction to a certain price change which it falsely assumes will be uniformly applied. It seems highly probable that such blanket limitations shut off some profitable increases that might possibly be questioned on propriety grounds but not on the efficacy basis which apparently induces the restrictions. This result is strongly indicated by an analysis of the apparent revenue effects of increases imposed on a number of commodity classes between 1950 and 1954.

The volume carried in each traffic class is determined by the total tonnage output of the component commodities and by the share of the total carried by the railroads. For the limited time period involved in this analysis, railroad rates will probably have little effect on industrial output. They will, however, significantly determine the railroad share, which is a function of the comparative course of rail and non-rail rates and of

the elasticity of intermodal substitution. An indication of the revenue effect of rate actions accordingly is provided by consideration of changes in tonnage handled relative to potential measured by commodity output. The relevant price and volume relations can be stated in index form. Comparative 1954 rate levels for the various commodity classes are indicated by the published indexes where the 1950 rate is 100.⁵ One volume index is derived where the actual rail tonnage handled in 1950 is 100 and the 1954 tonnage is stated as a percentage of the 1950 figure. A second volume index relates the potential tonnage for 1954 and 1950 and measures changes in the production of commodities in the various traffic classes.⁶ It indicates in relative terms what the 1954 tonnage would have been if the railroads had the same share of the market in that year as in 1950.

The revenue effect of the increases actually imposed is determined by the relation between the percentage increase in rates and the associated change in volume. A useful indicator of the latter term is the gap between actual rail tonnage and potential tonnage in 1954. Revenue effects are least favorable where the 1954 index of actual tonnage falls farthest behind potential. Table II summarizes the rate-volume relations in these terms for commodity classes for which rate indexes are published. For eleven of the classes tonnage actually increased relative to potential (Group I). Among those involving a decline in tonnage relative to potential, for 26 classes (Group II) the percentage increase in rates exceeded the percentage volume drop (as measured by the margin between actual and po-

⁴ *Ibid.*

⁵ Bureau of Transport Economics and Statistics, I. C. C., *Indexes of Average Freight Rates on Railroad Carload Traffic, 1948-1956*, Statement RI-1, March 1958.

⁶ Derived from tonnage data in Bureau of Transport Economics and Statistics, *Fluctuations in Railway Freight Traffic Compared with Production*, Statement No. 570, January 1957.

tential 1954 tonnage), indicating a favorable impact on revenues.

The reverse was true for the remaining 25 classes (Group III).

TABLE II—COMPARISON OF CHANGES IN RATES AND RAIL TONNAGE RELATIVE TO POTENTIAL: 1950-1954

Rate-volume grouping	No. of classes	Average 1954 tonnage indexes		Average tonnage index gap	No. of cases of rate indexes at or above the median
		Actual ^a	Potential ^b		
I ¹	11	107	88	+19	8
II ²	26	97	103	-6	17
III ³	25	83	112	-29	10

¹Commodity classes where the 1950-54 percentage increase in rates was accompanied by a rail traffic increase greater than the potential during this period.

²Commodity classes where the 1950-54 percentage increase in rates was greater than the percentage traffic restriction (as indicated by the relation between actual and potential tonnage for 1954) during this period.

³Commodity classes where the 1950-54 percentage traffic restriction (as indicated by the relation between actual and potential tonnage in 1954) was greater than the percentage increase in rates during this period.

^aWhere 1950 rail tonnage is 100.

^bWhere 1950 tonnage output of producing industries is 100.

^cMedian index is 111, with range from 102 to 124, with 1950 as 100.

Sources: Rate indexes from Bureau of Transport Economics and Statistics, *Indexes of Average Freight Rates on Railroad Carload Traffic*, 1948-1956. Statement RI-1, March, 1958. Tonnage indexes derived from data in *Ibid.*, *Fluctuations in Railway Freight Traffic Compared with Production*, Statement No. 570, January 1957.

While not providing a definitive evaluation of the rate changes,⁷ this breakdown does indicate the likelihood that the rate increases in Groups I and II were more fruitful than those in Group III. Significantly, as might be expected with wide variations in market conditions, the size of the gap is not associated with the magnitude of the rate increase. On the contrary, the reverse appears to be true. The median rate index was 111. Eight of the eleven Group I cases involved in-

creases equal to or higher than the median. Similarly, the increases in Group II were generally high, with 17 of the 26 involving rate raises of 11 percent or more. On the other hand, only 10 of the 25 Group III cases had rate advances of this magnitude.

Commission action in applying blanket limitations to a wide range of market conditions is unsound in principle and may well restrict unduly the earning potential of the railroads. "Blind caution" by the Interstate Commerce Commission is not an appropriate conditioner of pricing policies. Particularly if the carriers' percentage request is viewed as a maximum authorization, there is no apparent reason for Commission-imposed limits on efficacy grounds. Any review of the increase application should be based on propriety considerations.

Revenue Increments and Financial Need.

As indicated in the preceding section, the general rate level proceedings characterized by Ex Parte 206 are poorly designed to test the efficacy of proposed rate increases in the first sense of their ability to generate revenue increments. As presently conceived, they also fail in the second efficacy test of associating revenue increments with financial requirements. In such revenue cases the carriers are grouped together into regional networks which are essentially regarded as composite firms. This collectivization of rate and revenue matters stems from the fact that many quotations apply to movements that are either joint or competitive. Revenue needs are measured and revenue increments are sought for the group and not for individual firms. But each company must stand on its own feet financially; rate movements are collectivized while revenue requirements remain highly individualized.

⁷These relationships simply suggest that rate changes appear to have been more profitable for some groups of commodities than for others. Some other rate increase, either larger or smaller, may have been more profitable than that actually imposed.

If the industry were characterized by a model cluster of companies of substantially equal financial position, the distinction between the industry and its member firms would lose much of its significance. Unfortunately, however, this is not the case. Table III, which groups all Class 1 carriers by rates of return for 1955 and for the ten-year period from 1946 to 1955, emphasizes the wide variation in financial performance of individual railroad companies. It will be noted, for example, that in 1955 nearly a quarter of the rail plant enjoyed returns above 6 percent while another quarter was hopelessly deficient, realizing returns under 3 percent. Significantly, companies comprising about half of the national system had financial records which indicated either that they had no pressing need for additional revenues or that their requirements were so great that they would not be satisfied by any reasonably attainable proceeds of rate advances.

In supporting the Ex Parte 206 rate increase application a leading railroad spokesman asserted that the system as a whole required an additional \$442 million per year for capital improvements and implied that this gap would be filled if the composite net income were increased by this amount.⁸ But if the rate of return on asset valuation has any validity as a measure of financial performance, the greatest need for additional revenues must be found among the carriers with low return rates. Additional net revenues of \$442 million per year would meet the requirements only if the revenue increment accrued to individual lines in proportion to their need. There is no reason to expect that this would be the case and a look at the disposition of the proceeds of previous rate increases suggests that it is not.

TABLE III—DISTRIBUTION RAILROAD INDUSTRY BY RATE OF RETURN ON EX PARTE 175 VALUATION

Rate Range (percent)	Percent of Plant Value	
	1946-1955 average	1955
8 and over.....	3.62	9.93
6-8.....	13.04	12.59
5-6.....	9.66	4.93
4-5.....	26.17	23.42
3-4.....	12.22	23.36
2-3.....	28.45	17.93
under 2.....	6.84	7.84
over 6.....	16.66	22.52
under 3.....	35.29	25.77
Total over 6 and under 3	51.95	48.29

Source: Derived from *Railroad Rate of Return Study, Years 1946-1955*. Exhibit submitted by B. H. Moore in Verified Statement 22-7 in Ex Parte 206, January 29, 1957.

A rough indication of the disposition among individual firms of the proceeds of the Ex Parte 196 rate increase in relation to the revenue requirements is shown in Table IV. Revenues for 1956 reflect generally the effect of the general rate advance. Table IV segregates the carriers according to their 1955 rate of return,⁹ establishing groups over 6 percent between 4.52 (the national average) and 6, and under 4.52. It then shows for each group the additional net railway operating income required to bring the collective return to 6 percent. According to this analysis the companies with returns over 6 percent required no additional net income to achieve this norm but obtained 28 percent of the additional freight revenues. Those with returns between 4.52 and 6 percent required only 9 percent of the additional net income but attracted 18 percent of the revenue increase. On the other hand, the least prosperous group, with returns under 4.52 percent, gained only 54 percent of the revenue increment although they needed as a group 91 percent of the net income advance to attain a 6 percent return.

⁸ Graham Getty, Verified Statement No. 1, p. 18.

⁹ Computed from a rate base determined by the Ex Parte 175 formula.

TABLE IV—ESTIMATED DISTRIBUTION OF PROCEEDS OF EX PARTE 196 INCREASE IN RELATION TO RATE OF RETURN

Rate of return category (percent)	Ex Parte 175 valuation	Net railway operating income (millions)				Freight operating revenues (millions)			
		Earned in 1955	Required for a 6% return	Increment required for a 6% return		1955	1956	1956 increase	% of increase
				Amount	Percent				
over 6.00.....	\$ 5,597.73	\$ 443.14	\$ 335.87	\$.....	0	\$2,316.00	\$2,432.42	\$116.42	28
4.52-6.00.....	4,608.31	234.12	276.50	42.38	09	1,699.74	1,773.15	73.41	18
under 4.52.....	14,614.72	448.58	876.88	428.30	91	4,493.60	4,714.12	220.52	54
TOTAL.....	24,820.76	1,125.84	1,489.25	470.68	100	8,509.34	8,919.69	410.35	100

Sources: Derived from Table 1 to Verified Statement of Merrill J. Roberts on behalf of General Services Administration before the Interstate Commerce Commission in *Increased Freight Rates, Eastern and Western Territories*, 1956, Ex Parte 206.

The foregoing considerations clearly indicate the improbability that revenue increments will be matched up with revenue needs. A distinction should be made here between rate advances designed to correct the chronic cost-revenue maladjustment which was the subject of the initial Ex Parte 206 petition and those calculated to compensate for realized cost increases. It is virtually impossible for revenue increments from general rate advances associated with the first case to be distributed among the firms in a way which will have any significant impact on the basic railroad financial problem. It is possible, on the other hand, that revenue proceeds may be distributed at least roughly in accordance with realized cost advances. This simply means, however, that to the extent this distribution is achieved the basic problem does not become more acute; however, it makes little contribution to the goal of each firm's recovering all costs, including long-run capital costs. Solution of the basic problem clearly requires intensive study of the causes and cures of the financial problems of the substandard carriers. The general revenue case makes no contribution to this but rather obscures it because of the explicit loss of identity of individual firms inherent in the proceedings.

The wide dispersion in financial performance and the related difficulty of associating revenue needs and deficiencies pose a serious problem. Even if general rate increases should provide the railroad industry with adequate or even generous returns, it would be a rather hollow accomplishment. In 1955, with a national average return rate of 4.52 percent, nearly half of the rail plant (as measured by the Ex Parte 175 valuation formula) had a return rate under 4 percent. If increased revenues should advance the national average to 6 percent, which apparently approximates the railroads' objective, substantial portions of the plant would still suffer inadequate returns. Assuming an average advance from 4.52 to 6 percent, with all companies participating proportionately in the net revenue increase, 59 percent of the system would still fall below a 6 percent return and about a quarter below 4 percent. This suggests that any reasonably attainable net revenue position for the industry as a whole would still leave many companies unable to maintain their plants in high order and attract capital.

The Propriety Aspect of Rate Advances

Since the regulatory limits imposed in Ex Parte 206 (as well as in the earlier postwar proceedings) rested essentially on

efficacy grounds, the Commission has had little or no occasion to deal constructively with the problem of measuring the revenue entitlement of railroads under regulation. In Ex Parte 206, however, the Commission did brush lightly against the problem of appropriate limits on rate advances in a negative and somewhat inconsistent manner in its disposition of fair return on fair value as a criterion for judging revenue entitlement under regulation. The railroad case emphasized the low rate of return on invested capital realized by this industry in comparison with other public utilities and with manufacturing companies. This deficiency was interpreted in terms of its implication for capital attraction. Basic to the railroad case, therefore, was an extensive "cost of capital" study, which concluded that an industry-wide return rate of 8 percent was required to prevent capital rationing and a consequent deterioration in the quantity and quality of railroad service.¹⁰

The Commission was not completely insensitive to the rate of return measure employed by the railroads. It contemplated revenue increments sufficient to cover the increased supply prices of the roads in all regions and to provide something beyond this amount in the East and West. According to the Commission, as a result of the increase "all railroads subject to our jurisdiction will be compensated approximately to the extent of their known increased costs, and the eastern and western railroads will obtain some additional revenues over and above such costs."¹¹ The greater increase authorized in the East than in the West and South was attributed to more pressing financial requirements as measured

by "operating ratios, rates of return, and other financial indicia."¹²

While thus according return rates some comparative significance, the Commission denied a basic role for this measure as a determinant of revenue entitlement, declaring that "there is no statutory requirement or statement of policy requiring the making of rates to yield a certain rate of return on investment either in the United States as a whole, or in various rate territories."¹³ Commissioners Minor and Walrath, in a separate concurring opinion, went even further in this respect, emphasizing the absence of statutory authority as well as statutory requirements for employing this test of earnings reasonableness.¹⁴ On the whole, the Commission disposed of the rate of return problem in legalistic rather than in economic terms.

It is the position of this paper that the Commission errs in categorically rejecting investment return as a fundamental guide to earnings reasonableness and in its unqualified acceptance of the network as the relevant financial unit, which sires the conclusion that no regulatory limits on rate increases are required short of those imposed by the market. Regardless of the legal status of investment return, the Commission cannot escape its economic implications since it is a measure to which investors are accustomed and which is crucial to investment decisions. Although obscured by the fact that in the prescribed railway accounting system capital costs are covered by the residual "net railway operating income," they are as real as wages and material outlays. Despite the Commission's assertion of legalistic irrelevance, the extent and character of the rail plant and its flow of services is intimately bound up with the realized return.

¹⁰ Walter A. Morton, Verified Statement No. 2, Ex Parte 206.

¹¹ 300 I. C. C. 633, 686.

¹² *Ibid.*

¹³ *Ibid.*, p. 662.

¹⁴ *Ibid.*, pp. 702-03.

But a highly qualified application of investment return is required in railroad revenue cases where clusters of firms are the relevant pricing but not financial unit. If the equation of total revenues (TR) and total costs (TC) including a normal return on investment is a goal for the network, some companies will experience $TR > TC$ and others $TR < TC$.¹⁵ The achievement of $TR = TC$ for the network means little for capital attraction since the excesses of the opulent companies are not credited against the deficiencies of the paupers. Investors buy the securities of specific companies and not of larger industry segments. The artificiality of the network as the pertinent financial unit requires further consideration of the Commission's position that regulatory limits on general rate increases are superfluous. In distinguishing between regional networks and their member firms, specific attention should be focussed on those lines with substandard financial performance.

The returns necessary to achieve $TR = TC$ are computed from the relationship between the appropriate net earnings figure and the value of assets taken from accounting records.¹⁶ It is apparent that there is no necessary connection between this *accounting valuation* (AV) of productive assets as measured by the outlays necessary to acquire or replace them and the *economic value* (EV) of the plant measured by its capitalized earnings. Some investment decisions may have been in error or changed market conditions may restrict earnings

below anticipations.¹⁷ The wide variation in the financial position of individual rail lines and the sizeable segment of the industry with very low returns indicates a varying AV-EV relationship for different companies. Those with very low returns on assets are victims of severely impaired earning capacity and an economic value well below the accounting valuation upon which the returns are computed.

The AV-EV gap for some firms stems from a variety of causes but a comparison of roads with 1955 return rates over 6 under 3 percent at least suggest several general characteristics of the substandard companies. There is evidence, for example, that these companies are plagued by heavier passenger deficits and by lower traffic density with concomitant disabilities in operating performance.¹⁸ But most significantly, there is a strong suggestion that the financially weak companies are commonly called upon to support especially costly plant investments. Considering the companies with switching track less than 50 percent of total track owned, only one of the 32 with returns over 6 percent had an investment exceeding \$250,000 per mile of road. On the other hand, eight of the 31 roads under 3 percent showed plant investments in this category.

Adhering to the accounting valuation of substandard carriers by carrying these figures in the regional rate base, it is virtually inevitable that the result will be a composite return rate which is inadequate as measured by the yields in other industries. But it does not follow that a subnormal regionwide return (or $TR < TC$) establishes a case for the

¹⁵ Even if a return is not explicitly considered as a cost, the mere association of TR and TC for the networks is subject to this basic infirmity.

¹⁶ The so-called "valuation" is determined by the I. C. C. by inventorying and pricing out the assets of the companies. The central question in the valuation process of whether to use original cost or reproduction cost is of little or no concern for present purposes. The essential point here is that the resulting figures represent summations of the price of assets accumulated over the years and are unrelated to true economic value.

¹⁷ For a discussion of this relationship see Merrill J. Roberts, "Transport Regulation and the Railroad Problem," *Southern Economic Journal*, January 1957, pp. 256-271.

¹⁸ Comparative figures for the carriers with 1955 returns over 6 and under 3 percent, respectively, are as follows: passenger deficit as percent of freight revenues, 20 and 54; ton miles per mile of road operated (millions), 42.8 and 16.6; car miles per train mile, 72.6 and 63.5; ton miles per loaded car mile, 33.5 and 29.3.

propriety of additional revenues. The previously-indicated inability to relate revenue increments and requirements makes the rate increase a futile device for curing the real financial deficit which is a property of individual firms and not of the regional network. And in view of the uneconomic character of large portions of the system (measured by the AV-EV gap), further rate increases may be improper as well as futile and should be closely tested for their legitimacy. They impose additional burdens on shippers of lines with adequate earnings and provide extra wind-falls for these carriers. But more generally, the increases represent an effort to exploit inelastic demands throughout the entire system that is vainly calculated to offset the impaired earning capacity of some component parts and thus has little social justification.¹⁹

Although the market under regulation is not sufficiently free to establish true economic value of the railroad industry or regional segments through the earnings test, chronically poor financial records for individual companies at given rate levels should receive explicit attention. It is reasonable to test the economic validity of past applications of capital in specific companies by reference to the rate of return of the group. The argument is rather persuasive that earnings impairment for the substandard carriers is measured by the extent to which they fall behind the average financial performance of the companies in their regional network, all of which operate in the same institutional environment and with the same regulatory rules. For example,

¹⁹ There is no apparent justification or need for the less competitive traffic collectively to yield more than a normal return. To view the matter otherwise would imply that competitive traffic as a class yields less than a normal return. On the contrary, it is in precisely this area of the market where competition is most active that one would expect a normal return to be earned by an efficiently operated plant with capital structures reasonably related to prevailing market conditions.

with a regional average return of 5 percent, a company chronically unable to earn more than 3 percent on its accounting valuation is suffering an overstated value figure. If a 5 percent average is attainable under prevailing economic and regulatory arrangements, there is some justification for using this as a basis to capitalize that company's earnings and revise its valuation figure accordingly. By thus reducing the rate base for the regional network, the realized return is increased and the industry position changed with respect to revenue requirements. Such an adjustment of asset valuations and related annual costs should preface rate increases designed to achieve an equation of revenues and costs for the regional system.

Table V provides such a revaluation for the national system, capitalizing the net income of the substandard carriers at the average rate of 4.5 percent realized in 1955 and adjusting the "rate base" accordingly. Employing income data for only one year, this revision is merely suggestive. Without any revenue increments, this adjustment advances the average return to 5.5 percent, a significant jump toward a satisfactory industry level. The investment base is concomitantly reduced by about 20 percent, dropping about \$4.4 billion, from \$24.8 to \$20.4 billion. These return and investment figures are more realistic than the ones presently recognized and substantially reduce the revenues required from rate advances to achieve a $TR = TC$ equation.

This introduction of earning capacity into the "rate base" is not subject to the classic objection of circularity properly made when the regulatory objective is to control monopoly profits. It is obviously improper regulation to employ capitalized earnings as a rate base to test the reasonableness of the earnings capitalized

because any level of earnings is self-justifying. For rate control it is necessary to have an externally determined basis for judgment independent of earnings. But the present proposal entails writing down asset values for the substandard carriers: since there is no question of writing them up for the more prosperous companies, this path does no lead into the circularity treadmill.

TABLE V—REVISION OF ASSET VALUES OF SUBSTANDARD CARRIERS: 1955

Item	Realized in 1955	Revised by Capitalizing ^a
Net railway operating income (millions).....	\$ 1,125.8	—
Asset values (millions).....	24,820.8 ^b	\$20,386.1
Rate of return.....	4.5	5.5

Source: Derived from Table 1 to verified statement of Merrill J. Roberts on behalf of General Services Administration, before the Interstate Commerce Commission in *Increased Freight Rates, Eastern and Western Territories, 1956*.

^a Based on the Ex Parte 175 formula.

^b Capitalizing net railway operating income of substandard carriers (those with realized returns under the national average) by the national average return for 1955 of 4.52 percent.

In addition to alleviating pressures for unjustified rate increases, the reduction of the rate base through the capitalization process would have the further advantage of encouraging a corresponding physical and financial rationalization of the industry. It would create pressures to slough off obsolescent and duplicating facilities that are inherently unable to earn at the going (average) industry return rate. Such a process would include the pooling of physical facilities in order to concentrate use on the most efficient terminals and right-of-way and the outright consolidation of lines. This physical rationalization should lead, in turn, to the revision of capital structures to reflect the taste of economic reality injected by the asset revaluation.²⁰

²⁰ For a thoroughgoing study of a voluntary capital-structure modification to bring capitalization in line with earnings potential see Robert L. Masson, *New Shares for Old*:

With returns computed on the basis of revalued assets, regulation can not go far wrong in permitting a normal return for the network if it can be earned since the starting level will closely approach this goal.²¹ Some firms will still enjoy unusually attractive returns, but this is to be expected in the absence of the complete homogeneity assumed in the perfectly competitive model. Such extra rewards may reflect better-than-average operating efficiency, particularly favorable operating conditions, or even a conservative capitalization relative to earnings. Careful study of the factors underlying the high rewards may, however, indicated the social desirability of some further restraint on supra-normal returns beyond the prevention of windfalls from rate increases predicated on an inflated network rate base. One device which appears to warrant consideration is a compulsory freight car pool, with capital contributions from the carriers based on ability to pay. This approach would collectivize an important aspect of investment responsibility in a fashion consistent with group pricing. In addition, it would lead to operating economies by also collectivizing those aspects of production associated with car supply.

Never getting beyond the "efficacy" question, the Commission has had no occasion to consider the kind of general qualifications of rate advances suggested here. It has, however, imposed ceilings in some connections more closely related to propriety than to efficacy considerations. Such ceilings generally reflect a

The Boston and Maine Stock Modification (Harvard University Division of Research, Graduate School of Business Administration: 1958).

²¹ Professor Harbeson would impose other conditions, such as exhausting possibilities of efficiency improvements and raising rates for services conducted at out-of-pocket losses. See Robert W. Harbeson, "Post War Freight Rate Increases and the Railroads," *Public Utilities Fortnightly*, 1957, pp. 73-82. The first would be extremely difficult to formally administer as a prerequisite for a rate increase. It seems probable that the revaluation program proposed here would help to force the realization of Harbeson's conditions.

desire to protect established commercial interests and to stabilize competitive relations among producers. The superficial treatment of these situations without proper regard for the economic implications of regulatory action has produced some ceilings of highly questionable validity. A classic example is provided by the "hold-downs" imposed in connection with some rate increases, under which the approved percentage advance in rates is qualified by a specified absolute maximum increase. Such hold-downs have been widely applied by the carriers on items moving from the West Coast to the eastern portion of the country which come into competition with sources closer to the market (e.g., lumber from the South), as well as with truck and water movements. The application of the full percentage increase, adding more to the distant (transcontinental) rates, would upset established competitive relationships. The Commission has in many cases extended the list of commodities subject to the hold-downs or restricted the absolute maximum to be applied.

According to repeated testimony of western railroad spokesmen in Ex Parte 206, the extended hold-downs imposed by the Commission were a prime cause of the financial difficulty of these carriers whose fortunes are closely bound up with the increasingly important transcontinental traffic.²³ For example, between 1950 and 1955 the Union Pacific's revenue ton miles increased by 15 percent and its net investment by 21 percent. This new capital investment was made largely to accommodate new businesses reaching national markets through rates

reflecting the Commission-imposed hold-downs.²³

According to the testimony of company spokesmen, however, much of this appears to be unprofitable business.²⁴ Depressed rates which encourage full utilization of a given scale of plant are quite different from those which induce additional investment. If the carrier's contention is valid that these rates are unprofitable and if, as the Commission's action indicates, they are nonetheless required in the interest of western producers, serious economic inefficiencies are introduced. On the one hand there is an uneconomic commitment of capital to rail plant in the West. In addition, production is encouraged that could be more economically pursued elsewhere.

Conclusions

One gathers from this examination of maximum rate regulation in revenue cases that the Commission has its shoes on the wrong feet. It shows a misguided concern for carrier welfare by second guessing the companies as to the wisdom of managerial pricing policy. At the same time, its unsophisticated acceptance of the network as the relevant financial (as well as pricing) unit leads to highly superficial treatment of the problem of revenue entitlement under regulation. Sound policy, on the contrary, requires carrier determination of price policies to promote self interest but closer regulatory attention to the question of revenue entitlement.

The general rate case as presently construed is a veritable farce. Its broad sweep virtually precludes even the most rudimentary consideration of the intimate demand and cost relationships

²³ Verified Statement, No. 22-8, by W. G. Peoples, Vice President, Southern Pacific Company, in Ex Parte 206, February 1957, pp. 10-11.

²⁴ Verified Statement, No. 22-2 of Arthur E. Stoddard, President, Union Pacific Railroad, in Ex Parte 206, February 1, 1957.

²⁵ *Ibid.*

that should govern pricing in specific markets. Armed only with the crudest data and analytical concepts, the railroads solemnly endeavor to establish the wisdom of a course of pricing action represented by uniform percentage increases that they must know is indefensible in terms of self-interest and which is not very rigidly applied in practice. In the next scene, the Commission piously pretends an ability to pass judgment on market relations far too intricate for meaningful consideration with the information, insights, and operating methods available to it. The subtle tragedy in this scene is that the Commission becomes so preoccupied with its meaningless tilts with this windmill that it fails to take a stab at the flesh-and-blood problem of revenue entitlement. Neither of the performers are impressive in the roles in which they are cast and substantial changes are required in the script of rate level and earnings regulation.

Developing and applying the analytical tools and data required for sound pricing to serve carrier interests is clearly a responsibility of private management. The consequences of the carriers' failure to develop fully market data for pricing purposes can in no way be mitigated by the fruitless processes of the general rate case. Regulation should not thwart the self-interest application of such insights as they have thus far developed or will generate from their recently-intensified concern with pricing problems. Although the rate case develops little relevant market information, the Commission nevertheless establishes limits on price increases that are unwarranted on efficacy grounds and untested on propriety grounds.

The increase applications should be judged exclusively with reference to the legitimacy of additional revenues. But, operating with prevailing concepts, the

Commission has had neither the occasion nor tools to deal with this issue. Uncritically accepting the network as the appropriate financial unit reveals such serious revenue deficiencies that the need for ceilings appears to be rather remote. And not looking beyond the accounting valuation of the network the Commission is unable to evoke a meaningful guide to revenue entitlement. But critical examination of the operating concepts indicates that the need for earnings limitations may not be remote. Employment of the network as the relevant unit for measuring earnings entitlement requires that the accounting valuations be modified by a consideration of the impaired earning capacity of some past capital commitments. Ignoring this result of changed market conditions leads to unjustified rate increases vainly calculated to shore up uneconomic investment. On the other hand, we are probably not prepared to unqualifiedly accept the value dictates of the market for the system as a whole, a course which would entail the complete elimination of control over rates and earnings. The proposed program of asset revaluation of sub-par companies is a feasible device to compromise this dilemma and thus bridge the gap between historically-oriented accounting valuations and the true economic value established in the market place.

Given this adjustment, the commonly-employed measure of relative earnings—return on investment—can be meaningfully applied to railroad networks. As matters now stand, we have no effective guide to allocative efficiency in railroad transportation, either from the market or from regulation. But with the carriers free to pursue their private interests, subject only to limitations dictated by such an economically valid test of earnings entitlement, the flow of revenues into the

railroad system will appropriately dictate the quantity and quality of railroad investment and services. In view of the magnitude of the revenues and investment involved, the costs of ill-suited regulatory policy are great.

Among Articles Appearing in August 1959 Issue:

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An Analysis of Non-Business Rail Travel†

By HERBERT E. NEIL, JR.* and JOHN B. LANSING**

THE PROBLEMS of the railroads have been a topic of public discussion especially since the reduction in the level of general economic activity in the 1957-1958 period. Hearings on the subject were held by a United States Senate committee in the winter of 1958.¹ Many of the difficulties confronting the railroads have their origin in continuing substantial deficits in the passenger business. The present article is concerned with the market for passenger service.

The first section of this article reports on an investigation of non-business rail trips based on sample surveys of the adult population of the United States. The second section develops some implications for public policy of the findings of the first section.

The history of rail passenger travel in this century can be described in four stages: (1) Steady increase in traffic during the first two decades of the century. The number of railroad passengers more than doubled between 1900 and 1920 with an all-time high of 1,270,000,000 trips in the latter year. (2) Decline in business during the twenties accelerated by the depression of the thirties, with business reaching a low of 434,000,000 trips in 1933. (3) A rapid increase in rail travel during World War II. From 1940 to 1944 the number of passenger trips doubled, reaching a figure of 916,000,000, a level comparable with the

mid 1920's. (4) Progressive fall-off in passenger travel during the past 12 years. The number fell below half a billion trips in 1950, and by 1955 and 1956 was below the level of 1933. In 1956, 430,000,000 trips were taken. The decline since World War II has been most rapid in distance rather than commuter travel. From 1946 to 1956 the number of commuter trips dropped from 340,000,000 to 250,000,000 or 27%, while other trips fell 60% from 250,000,000 to 180,000,000.² Associated with the decline in business have been deficits on the passenger business, estimated by the Interstate Commerce Commission at over half a billion dollars yearly since 1948, with the deficit approaching \$700,000,000 in 1956.³

I. The Empirical Investigation

Most of the data used in this investigation were collected in 1955 and 1956 in a National Travel Market Survey conducted by the Survey Research Center of the University of Michigan for the Port of New York Authority and the New York Central System. Limited use is made also of data collected in a similar survey in 1957.⁴

¹ *Seventieth Annual Report on Transport Statistics in the United States for the Year Ended December 31, 1956*, pp. 30, 111.

² The problem of estimating the size of the passenger deficit has received attention recently. See, for example, *Avoidable Costs of Passenger Train Service*, a report prepared by a Research Committee of the Aeronautical Research Foundation, September 1957, reprinted in the Hearings cited in footnote 1, Part I, pp. 237-284. In this report it is contended that the Interstate Commerce Commission estimate of the cost of passenger service is too low.

³ The 1957 Survey was sponsored by the New York Central, the Pennsylvania Railroad, and the Boeing Airplane Company. The railroads discontinued support of this series of surveys after 1957 as part of their gradual withdrawal from the passenger business. A more complete statement of the methods used in the travel surveys including tables of sampling of errors of percentages is contained in *The Travel Market 1955*, by John B. Lansing and Ernest Lilienstein, Institute for Social Research, Ann Arbor, Michigan.

† The analysis reported here was carried out as a project of the Research Seminar in Quantitative Economics of the Department of Economics, University of Michigan.

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¹ *Problems of the Railroads*, Hearings Before the Subcommittee on Surface Transportation of the Committee on Interstate and Foreign Commerce, U. S. Senate, 85th Congress, Second Session, Washington, 1958.

In each year interviews were taken in 66 primary sampling units, including the 12 largest cities in the country and 54 other counties (or groups of counties). Smaller geographical areas were selected from the primary sampling units and finally individual dwelling units in these areas formed the basis of the sample. One individual in each family was interviewed. Questions were asked about trips by rail, bus, air, and auto in the twelve months prior to interview. This period does not coincide exactly with the calendar year since interviews were taken in two or three waves at different seasons. The analysis reported here is concerned with "non-business" trips. A "trip" is defined as a round trip to a point 100 miles or more away from home, and "non-business" trips are trips not taken in connection with one's work. All pleasure or personal trips thus fall into the "non-business" category.

The fundamental question asked by the investigators in the present analysis is: what determines the probability that an individual adult will take one or more non-business rail trips during a period of a year? Three measurable characteristics of the individual suggested themselves as likely to be of basic importance: his income, or rather that of the family of which he or she is a member; his stage in the family life cycle, which should be related to how many people are likely to go with him when he takes a non-business trip; and the population of the community in which he lives, which should be related to the frequency of service by different modes available to him. Two-way relations between these variables and taking a non-business rail trip were obtained. For purposes of comparison, similar calculations were made for non-business travel by air, bus, and auto. The data used are averages of the findings of the 1956 and 1957 Surveys.

The proportion of adults who take a rail trip rises with income to a low peak of eight percent in the income class \$3000-3999, then falls off slightly, and finally rises again for the income classes above \$7500 a year. For air travel, on the other hand, the proportion taking a non-business trip is small at the lowest income level (two percent for the income class under \$2000) but rises regularly and at an increasing rate. The proportion taking a bus trip falls with income, for incomes above \$2,000. Ten percent of adults with incomes between \$1000 and \$2000 took non-business bus trips in 1956 and 1957. The proportion taking a trip by auto at every income level is much larger than that using any of the other modes. The percent of adults taking an auto trip rises sharply from a level under 30 percent for those with incomes below \$2000 to over 65 percent for those with incomes over \$5000. Thus, the data suggest that non-business trips by rail may be relatively more important to people with incomes below \$4000 than to those in the middle-income groups. The relation between income and rail travel will be further explored below.

The relation between stage in the family life cycle and use of the railroad for non-business rail travel is U-shaped. Young, single adults are more likely to take a rail trip than are young, married adults, and they in turn are more likely to take a rail trip than adults with young children. Only five percent of the latter class took non-business rail trips in the selected years. In the later stages of the cycle the proportion rises gradually and older single people (widows and widowers, for the most part) are about as likely to travel by rail as the young bachelors. Twelve percent of both age levels of single people use the rails for non-business travel. For air and bus travel the relationship is similar with one

exception: older people are not as likely to travel by air as by rail. Less than six percent of adults 45 or over with no children under 18 take a non-business air trip compared with ten percent for the young single group. For auto travel the relationship is quite different: young married adults are *more* likely than young single adults to travel by auto, presumably because by auto two can travel about as cheaply as one. Two-thirds of the young married adults without children take a non-business trip by auto, while 55 percent of those adults in the young single category use auto for such trips. Couples with young children, however, are less likely to travel by auto than those with no children or older children. In the later stages of the life cycle there is a pronounced decline in the tendency to travel by auto. One-half of the older married adults with no children under 18 take a non-business auto trip and less than one-third of the older single group travel by auto. Thus rail travel is relatively more important to older people, especially older single people, than to people in the middle years.

The third relationship indicates the proportion of adults in different types of community who take one or more non-business trips by each of the four modes of travel over a period of one year. People in the large urban centers are more likely to travel by rail than those living in the smaller towns and cities or in rural areas. Between ten and eleven percent of the adults who live in the large metropolitan areas or in cities with a population of over 50,000 take a non-business rail trip while the comparable figures for smaller cities and rural areas are nine and five percent, respectively. The same is true of air travel, though here the proportion falls off more rapidly as size of place declines. Only six percent of

the adults residing in the twelve largest metropolitan areas take a trip by bus to a point 100 miles or more away, while nearly nine percent of the residents of smaller cities use bus. Auto travel is relatively less common among residents of the central cities of the metropolitan areas. Less than 40 percent of this group take a non-business trip while over 50 percent of the adults in metropolitan suburbs, cities, or rural areas employ auto for a similar trip.

The analysis of non-business rail travel was continued with a breakdown of the data by income, life cycle, and place of residence considered jointly. Income was divided into four classes; life cycle, five categories; and place of residence, three sub-groups. Sixty sub-groups, or cells, for each of the years 1955 and 1956 were thus obtained. The percentage of adults in each sub-group who took a non-business rail trip was calculated. In order to increase the number of observations in the cells a simple average of the proportions from the 1955 and 1956 data was computed for each cell. The full table thus prepared is not reproduced here, partly to save space, and partly because some of the sub-groups are so sparsely populated as to be of little interest. Tables I, II, and III, however, show the joint relationship between each of the possible pairs of the three independent variables and the dependent variable.

The income-life cycle relationship is given in Table I. The U-shaped relationship of stage in the life cycle to rail travel is most pronounced in the lowest income group. It is considerably attenuated for incomes over \$15,000. On the other hand, moving across the rows, the most regular increase in rail travel as income increases is exhibited in the married with children group. For single adults there is no appreciable increase in rail

travel associated with rising income except at the \$15,000-and-over level where the number of cases in each cell is small enough so that the income effect cannot be estimated with precision. In other words, the data in Table I indi-

TABLE I—THE EFFECT OF STAGE IN THE LIFE CYCLE BY INCOME CLASS UPON RAIL TRAVEL: PERCENT OF THOSE IN DIFFERENT STAGES WHO TOOK A NON-BUSINESS RAIL TRIP, BY INCOME CLASS IN 1955 AND 1956

Stage in Life Cycle	All Incomes	Income Under \$4,000	Income \$4,000-7,499	Income \$7,500-14,999	Income \$15,000 and over
Young, single.	12%	9%	13%	11%	36%
Young, married, no children.	8%	7%	7%	11%	27%*
Married, children..	6%	4%	6%	8%	14%
Older, married, no children.	9%	7%	9%	18%	20%
Older, single.	10%	10%	12%	6%	22%*
All stages.	8%	7%	8%	11%	21%

* Less than 30 cases in cell.

cate there is an income-life cycle interaction.

The relationship between income, place of residence, and non-business rail travel (Table II) is more symmetrical.

TABLE II—THE EFFECT OF INCOME BY RESIDENCE UPON RAIL TRAVEL: PERCENT OF THOSE IN DIFFERENT INCOME CLASSES WHO TOOK A NON-BUSINESS RAIL TRIP BY AREA IN 1955 AND 1956

Income Class	All Areas	Metropolitan Areas and Cities over 50,000	Cities 2,500-50,000	Rural Towns Under 2,500 and Open Country
Under \$4,000	7%	9%	6%	5%
\$4,000-7,499	8%	9%	8%	5%
\$7,500-14,999	11%	12%	9%	10%
\$15,000 and over.	21%	20%	31%	18%
All incomes.	8%	10%	8%	6%

A pattern of increasing non-business rail travel as income goes up appears for each of the three residence categories. The decline in non-business rail travel associated with decline in population is most pronounced for those with income under \$7,500, however. It is possible that high-income people are less likely than low-income people to be cut off from rail service because they live in a small community.

Table III shows the joint effect of stage in the life cycle and place of residence. All areas display the U-shaped relation between life cycle category and

TABLE III—THE EFFECT OF STAGE IN THE LIFE CYCLE BY RESIDENCE UPON RAIL TRAVEL: PERCENT OF THOSE IN DIFFERENT STAGES WHO TOOK A NON-BUSINESS RAIL TRIP BY AREA IN 1955 AND 1956

Stage in Life Cycle	All Areas	Metropolitan Areas and Cities over 50,000	Cities 2,500-50,000	Rural Towns under 2,500 and Open Country
Young, single.	12%	12%	14%	11%
Young, married, no children.	8%	9%	9%	6%
Married, children..	6%	8%	6%	4%
Older, married, no children.	9%	12%	8%	7%
Older, single.	10%	12%	9%	7%
All stages.	8%	10%	8%	6%

rail travel although it is most pronounced for the rural areas. For a given stage in the life cycle the effect of place of residence is strongest in the married group with children and practically non-existent in the young single group. The greater accessibility of good rail service in urban areas seems to be more important to families with children than to single people.

The above analysis points to the existence of a series of interactions involving

pairs of the independent variables. The investigators wished to consider the effect of other independent variables allowing for the three variables already discussed and any interactions between or among them. To do so they adopted two techniques. First, they selected five of the cells in the basic 60-cell table. Within each of these sub-groups they examined the influence of additional independent variables.

The groups selected for analysis were: (1) adults with incomes less than \$4000, under 45, single, and living in metropolitan areas; (2) adults with incomes less than \$4000, married, with children, and residing in cities or towns with a population between 2,500 and 50,000; (3) adults with incomes less than \$4,000, 45 or over, single, and living in rural areas or in towns with a population less than 2,500; (4) adults in the income range \$4,000-\$7499, married, with children and living in metropolitan areas; (5) adults with incomes between \$7500 and \$14,999 married, with children, and living in metropolitan areas. There was no special reason for the selection of these particular five sub-groups although some attempt was made to vary each of the three independent variables; nor was there any special reason for selecting exactly five sub-groups. This method meets the criterion of holding constant the three variables used to define the cells and any interactions among them.

The second technique involved use of the full 60-cell table. For each individual adult in the 1956 Survey a residual was computed. The proportion of adults in a given cell who took a non-business trip was regarded as an estimate of the probability that a member of this group would take such a trip. Since any individual either did or did not take a trip, his behavior differed from that "predicted" for him either by the difference

between the average probability for people in his cell and zero (if he took no trip), or by the difference between one and the average probability for the cell (if he took a trip). To avoid negative numbers a constant of one was added to all residuals. It was then possible to compute mean residuals for adults classified according to additional independent variables. Results are shown in Table IV. This technique has the advantage that sampling errors of the mean residuals can be computed by a method which takes into account the full complexity of the sample design.⁶ Such calculations have been carried out and the significance of the difference between each pair of mean residuals is shown in Table IV.

Both methods of analysis indicate that whether or not an individual's family owns an automobile is a factor in whether he takes any non-business rail trips. Among adults who own a car, have an income less than \$4000, are under 45, single, and reside in metropolitan areas, 9 percent took such a trip, while of those who do not own a car but possess the other three characteristics, 12 percent took one. Differences in the same direction appear for four out of five of the selected groups. The mean of the residuals in Table IV for those who own a car is about .03 lower than for those who do not. It is certainly reasonable to find that people who do not own a car are more likely to travel by rail than others whose situation is otherwise similar. This result may help to explain the peculiar shape of the two-way relation mentioned above between income and the probability that a person will travel by rail. Some people in the low-income groups do not have a car. As income rises, people may tend to travel

⁶ For a discussion of the need for special estimates of sampling errors for complex samples, see Leslie Kish, "Confidence Intervals for Clustered Samples," *American Sociological Review*, April 1957, pp.154-165.

more often by rail up to a point at which they purchase an automobile—and then use it for their trips to points 100 miles or more away.

TABLE IV—MEAN RESIDUALS FOR NON-BUSINESS RAIL TRAVEL AFTER ALLOWING FOR INCOME, STAGE IN THE FAMILY LIFE CYCLE, AND PLACE OF RESIDENCE

(based on data from the 1956 Travel Survey)

	Mean Residual	Difference	Standard Error of the Dif- ference
<i>Car Ownership (of family)</i>			
Owns.....	.985	.0347	.0102
Does not own.....	1.02		
<i>Sex</i>			
Men.....	.97	.0371	.007
Women.....	1.01		
<i>Use of Auto Last Year</i>			
Took one or more non- business auto trips....	1.02	.0428	.0076
Did not take a non- business auto trip.....	.97		
<i>Use of Air Last Year</i>			
Took one or more non- business air trips.....	1.14	.1515	.0308
Did not take a non- business air trip.....	.98		
<i>Use of Bus Last Year</i>			
Took one or more non- business bus trips....	1.17	.1882	.0297
Did not take a non- business bus trip.....	.98		
<i>Clerical Workers</i>			
Clerical workers.....	1.03	.0366	.0185
Other occupation groups.	.99		
<i>Farm Operators</i>			
Farm operators.....	.97	.0274	.0097
Other occupation groups.	1.00		
<i>Grade School Education</i>			
Had no more than a grade-school education	.98	.0206	.0079
Had more than a grade- school education.....	1.00		
<i>College Education</i>			
Did not attend college...	.99	.0273	.0116
Did attend college.....	1.01		

It is perhaps more surprising to find a difference between the sexes in the tendency to use the trains for non-business trips. In each of the five selected groups

women are more likely than men to travel by rail. The differences are considerable. The proportion of women who took a non-business rail trip is roughly twice the proportion of men. For example, consider adults in the income range \$7,500 to \$14,999, married, with children, and living in metropolitan areas. Of the women in this group, 14 percent took at least one non-business rail trip, compared to 7 percent of the men. Similarly, the mean residual for women in Table IV is .04 larger than that for men.

The explanation of this finding is not obvious to the authors. It may be that women prefer to travel by rail rather than by automobile, especially when it is a question of driving a car themselves to a point 100 miles or more away. It may also be true that some of the trips are by women taking "non-business" trips to accompany men traveling on business.

There seems to be a tendency for people who take a non-business trip by other modes also to take one by rail. The mean residual for those who took one or more non-business auto trips is .04 larger than that for those who did not. For air and bus the differences between the corresponding pairs of mean residuals is even larger.

The result suggests that there is a tendency for some people to travel more than others, even after taking into account income, stage in the family life cycle, and place of residence. The hypothesis emerges that people may differ considerably in their underlying desire to travel or willingness to travel. There is, of course, substantial competition between modes of travel, since on any given leg of a trip an individual must select one mode in preference to the others. The data suggest the possibility, however, that this competition may be mitigated by a tendency for people who get into

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the habit of traveling to become favorably disposed toward all modes of travel.

There do not appear to be wide differences among occupation groups in the tendency to take non-business trips by rail apart from differences explainable in terms of income. The widest differences which do appear are between clerical workers and all other occupations, and between farm operators and all other occupations. The former is statistically significant (Table IV) but should be interpreted in the light of the fact that clerical workers tend to be women. As already noted, there seems to be a general tendency for women to travel by rail. The difference in mean residual between farm operators and the rest of the population amounts to .03 and is statistically significant. It may be associated with a general tendency for farmers to travel less than the non-farm population.

There are also small differences between education groups in mean residuals which are statistically significant (Table IV). These differences presumably reflect differences in attitudes toward travel associated with the differences in education.

To summarize: the principal factors associated with whether an adult takes at least one non-business rail trip in a year are the following: the income of his family, his stage in the family life cycle, the population of the community in which he lives, his sex, and whether he owns an automobile. Another factor which seems to have importance is his general propensity to travel as reflected in his use of other modes of transport and as determined by his education and whether he is a farmer.

II. Observations on Public Policy

A general discussion of the problems of public policy toward the railroads is certainly beyond the scope of this article. Nevertheless, there are two areas in

which the findings seem to the authors to have some relevance which may be worth pointing out. These areas are the social implications of the abandonment of rail service and the pricing of passenger service.

Implications of Abandonment of Passenger Service. The empirical results in the first section of this paper make it possible to characterize the segments of the population likely to be affected by the gradual withdrawal of the railroads from passenger service. Clearly, the people who would be affected are those who now travel in this manner. The summary statement at the close of Part I is in effect a description of those who would now be forced to make other arrangements for non-business trips if long distance rail passenger service were to cease.

The issue may be put as follows: There is a general tendency for railroad managements to seek to withdraw from the passenger business on the ground that they are losing too much money on it. To what extent should they be encouraged and, if necessary, subsidized to remain in the long distance passenger business? Considerations involving business travel by rail and possible use of rail passenger facilities for national defense are beyond the scope of this discussion. It does seem to the authors, however, that some of the elements of the population now traveling by rail for non-business purposes are entitled to special consideration, namely older people, especially the widows and widowers, women and low-income people. The welfare of these groups should be considered in decisions involving the future of rail passenger service. (The young, single people and high-income travelers are more likely to be able to shift for themselves.) It is perhaps necessary to add that the proposition that the welfare of certain groups is involved and should be taken into account is not

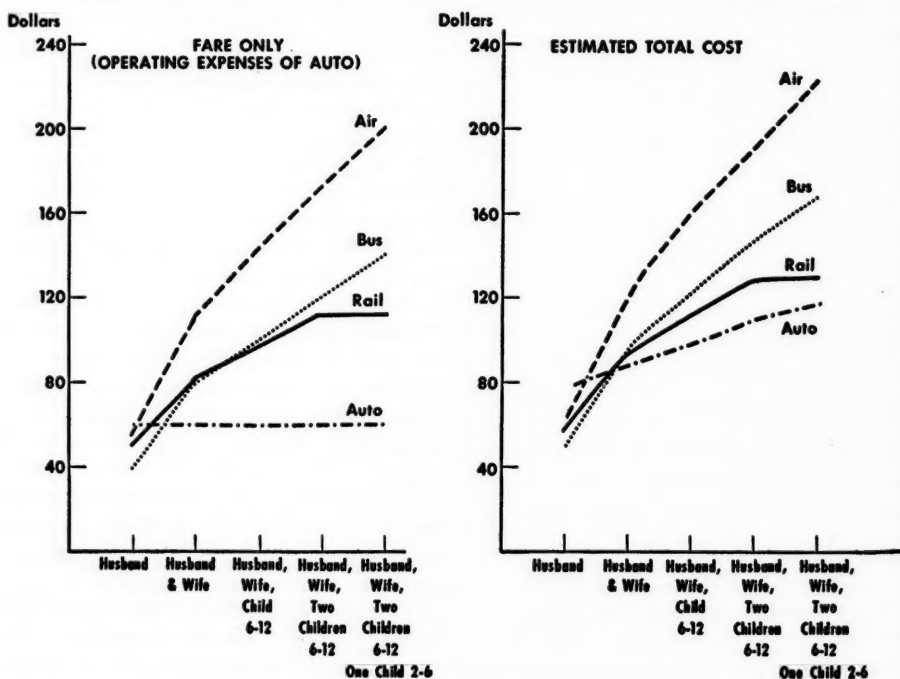
equivalent to an endorsement of any policy or set of policies.

Pricing of Passenger Services. In a cross-section analysis at a given date such as that of present investigation, it is extremely difficult to obtain estimates of the price elasticity of demand or indeed any information at all about the probable effects of different price policies. The data on the variations in the use of rail for non-business travel by stage in the family life cycle however seem suggestive for price policy. The results show, it will be recalled, that 12 percent of young, single people take a non-business rail trip in a year, 8 percent of young married adults, but only 6 percent of married adults with children under 18, while at the later stages the proportions rise again to 9 percent of older married adults with no children at home and 10 percent of older, single adults. These

differences may be the result in large part of differences in effective price.

The price of a non-business rail trip to the man buying it is the total price for the family group for which he is buying the service. The competitive advantage of different modes may vary greatly depending on the composition of the group.

The importance of these considerations is illustrated in the accompanying chart, which contains estimates of the cost of a round trip from Detroit to New York in the spring of 1958 for the following groups: husband only; husband and wife only; husband, wife and one child aged 6-12; husband, wife, and two children aged 6-12; and husband, wife, two children aged 6-12 and one aged 2-6. The estimates are for rail coach; air coach or family plan which ever was cheaper; bus; and auto. One half of the graph shows the fare by each of the



ESTIMATED COST, ROUND TRIP, DETROIT TO NEW YORK, BY EACH MODE

common carriers and for auto the estimated marginal cost of driving to New York for someone owning an auto in good running order (gas, oil, lubrication, tolls, and extra wear, at 4-5 cents per mile). Of these estimates only the cost of operating an auto is an approximation; it should be kept in mind that there is considerable variation in cost of operating an auto from one vehicle to another and one driver to another for reasons which it is hardly necessary to review here.

The other half of the graph shows estimated total cost, including meals, lodging (for the auto trip), and taxi fares. Here there would be much variation from one family to another in actual outlay and the curves should be regarded as rough approximations.

The graph shows that rail travel is more economical than auto travel for a single adult and probably also slightly less expensive than air travel. For the party of two adults, auto travel is probably cheapest, though the margin below rail will not be large if the allowance for food, lodging, and operating expenses on the auto trip is generous. Air travel for the party of two is easily the most expensive. For the family including children, rail travel is substantially more expensive than travel by auto. The cost of travel by air continues to rise faster than by either rail or auto. For bus travel the shape of the curve is such as to suggest that the bus lines are not seriously interested in transporting family groups between Detroit and New York.

One possible method for the railroads to obtain more passenger business (or to slow down the rate at which they lose business) is to cut the price. But it is not necessary to cut the price on single tickets. If the estimated costs shown in the chart are typical, the price to cut is the price for additional members of the

party. A "family plan" rate of, say, full fare for the husband, one-third fare for the wife, and no charge for the children would put the cost of rail travel below that of auto travel for the round trip from New York to Detroit.

The amount of increase in rail travel which might result from such a policy is not easy to estimate. But some calculations can be made. Adults who are members of married couples with children comprise about 46 percent of all adults. Every increase of 1 percent in the proportion of married adults with children using the trains thus would represent the addition of 0.46 percent to the proportion of the total adult population using the trains. If the proportion of married adults with children traveling by rail increased to the same level as the proportion of young single adults traveling by rail, i.e. from 6 percent to 12 percent, the effect would be to increase from 8 percent to 11 percent the proportion of all adults taking at least one non-business rail trip a year. The gain in revenue would not be in this proportion, of course, since there would be some reduction in fares collected from present passengers. The total amount of the loss cannot be estimated without information about fares collected from children. As far as adults are concerned, it would not be large, since relatively few married adults with children now take non-business trips by rail and only one of a couple would enjoy any reduction in fare.

The preceding argument refers, of course, only to the total revenue to be anticipated from a change in price policy. The authors have no special knowledge of the marginal cost of carrying additional passengers, but have assumed that it would be small. This assumption is most reasonable if the proposed low rates are applied only on those days of the week or seasons of the year

when the railroads are operating at less than their peak load. A possible side effect of the proposed policy would be the shifting of some of the trips by families from the periods of peak load to the periods of excess capacity. A reduction in peak load would make possible some reduction in the amount of equipment needed, and, hence, should tend to reduce costs.

Summary. It is argued in the second section of this paper that the finding that

relatively high proportions of women, older single people, and people in the low income groups travel by rail should be taken into account in the formulation of public policy toward the railroads. It is suggested that consideration should be given to a system of pricing rail passenger service which involves maintenance of present fares for individual travelers but a drastic reduction in fares for additional members of their families traveling with them.

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Urban Land Use Classification

By IRVING D. SHAPIRO*

INQUIRY into every distinct field of study must begin with classification, that is, the sorting of a set of phenomena composed of generically-alike units into classes or kinds, each class or kind consisting of members having definable characteristics in common.

First, without classification, these phenomena would remain merely a bewildering multiplicity; the precise and unambiguous communication of ideas and concepts concerning these phenomena would be impossible. Second, classification of the phenomena involved is essential if generalizations are to be made concerning these phenomena. For we are primarily interested in general truths—that is, truths related to classes or kinds rather than to their individual members; a truth discovered about such a member is always implicitly applied to the entire group to which the member in question belongs. Without classification such generalizations would also be impossible. And, finally, the evolution of a body of reliable knowledge concerning any set of phenomena through the process of accretion would be extremely difficult without classification. For in its absence every investigator embarking upon a course of inquiry would be compelled to retrace the same paths which had been traveled upon by countless others before him. The accumulation of knowledge under this condition might take place but only at an agonizingly slow pace.

But the mere ordering of a set of phenomena does not automatically yield a *useful* classification; the system of classification adopted must reflect the purpose or purposes which the classification is intended to serve. For example, in the

realm of astronomy celestial bodies may be classified as satellites, planets, stars, nebulae, and so on, according to their relative motions. However, they may also be grouped into solar systems and galaxies according to their relative positions in space. If the object of classification were to provide a basis for generalizations about the relative motions of celestial bodies, their classification into solar systems and galaxies would be useless *for that purpose*.

Hence, the arrangement of the set of phenomena involved into a systematically ordered body of separate groups—each composed of members having definable characteristics in common—in accordance with a principle of classification which reflects the purpose or purposes which the classification is intended to serve is basic to inquiry into every distinct field of study. Yet, when the set of phenomena to be classified involves the uses to which urban land in a community are put, the satisfaction of these basic requirements is generally conspicuous by its absence.

In recognition of the importance of classification prior to inquiry into the uses to which urban land is put, a host of land use classification systems has been devised whose implied purpose is to serve as bases for descriptions of the current land use patterns of individual communities. These so-called “conventional” systems of land use classification are related in that they all involve the ordering of “urban land uses” into broad classifications such as “residential,” “commercial,” “industrial,” and so on. And, as an indication of their general acceptance, they have served as the bases for hundreds of such descriptions of land

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use patterns running the gamut from "land use" descriptions of small towns of less than 5,000 population to "land use" descriptions of urban conurbations whose populations number in the millions. However, a close examination of several of these "conventional" systems will reveal that: (1) they fail to treat of generically-alike units; (2) they fail to group members having definable characteristics in common; and (3) they fail to reflect the purpose which they are intended to serve.

Let us consider one such system of land use classification, a system upon which descriptions of "land use" patterns for eighty-six cities and eleven urban areas were based.¹ The heart of this system consists of an alphabetical index of "urban land uses" as classified in zoning surveys with each "urban land use" keyed to one of nine main classes. Although some repetition does exist in this index—for example, "Residence, 2-family" and "Two-family dwelling" are separately enumerated within the main classifications of two-family dwellings—the index includes more than 600 virtually distinct "urban land uses." Yet, enumerated as land uses are "coal mining," "cabinet maker," "exhibition buildings," and "railroad right of way," "book publishing," "pawnbroker," "office building," and "water company property." Thus mingled together as "urban land uses" are types of activities, types of establishments, types of structures, and legal rights—items that are anything but generically alike. Can they all be land uses?

Further, classification depends upon a sorting of units into groups whose members have definable characteristics in common. Yet an examination of this alphabetical index shows that retail

bakery, bank, baseball park, broadcasting station, bus depot, drive-in theatre, gymnasium, hotel, kennels, mortuary, oil station, saloon, and trailer camp are all enumerated as commercial urban land uses; publicly owned exhibition buildings, city infirmary, penitentiary, playgrounds, and United States Government building are all grouped under Park and Playgrounds; and airport, aquarium, church, college, comfort station, dog pound, institutional or municipal nurseries, poorhouse, and synagogue are all gathered together under Public and Semi-Public Property. Is it possible that the members of each of those groups could have any definable characteristics in common?

And finally, in addition to serving as a basis for the land use pattern descriptions of individual communities, this classification is intended to provide a basis for "observations of existing land use and . . . some idea of the trends in land utilization."² It is also intended to provide assistance in "urban planning . . . annexation studies, real estate surveys of various kinds, market determinations, and many other types of inquiry"³—virtually an all-purpose system. Yet it is difficult to comprehend how the sorting of generically-unlike units into groups whose members have no definable characteristics in common can fulfill any of these objectives let alone all. Indeed, that this classification may have served as the basis for public policies regarding the future utilization of the urban land involved is cause for concern.

The case cited above is not an isolated one. In 1948 the Public Administration Service published "a procedural guide for the classification and mapping of land uses and related technical studies."⁴ Since the Public Administra-

¹ *Ibid.*, p. 10.

² *Ibid.*

³ E. B. Wilkins, *Mapping for Planning* (Chicago: Public Administration Service, 1948), pp. 15-25.

⁴ Harland Bartholomew, *Land Uses in American Cities* (Cambridge: Harvard University Press, 1955), Appendix B, pp. 145-46.

tion Service provides advisory and consulting services to government agencies at all levels—local, state, national, and international—and in all fields of public administration, we can assume that the system of land use classification it proposed provided the basis for the land use pattern descriptions of many other communities.

The system involved here is somewhat similar to the one utilized by Bartholomew; it also consists of an alphabetical index of "land uses." However, here we find about fifteen hundred "land uses," each keyed to one of twenty subclassifications with the several subclassifications grouped into eight major classifications. In addition, its author felt compelled to develop a separate category of "Public Buildings."

Upon examination, we again find a system of classification which attempts to order generically-unlike units. For example, "bag cleaning," "department stores," and "office building," hemstitching," "nursery schools," "exhibition building," and "airport property"—that is, types of activities, types of establishments, types of buildings, and legal rights—are all mingled together as "land uses."

And, here too, the members of each group have nothing in common. Under *General Business* we find such unrelated items as advertising, photograph studios, air express service, antiques, turkish baths (private), dental laboratories, caterers, book-sellers, palmistry, and stamp dealers; under *Public* and *Quasi-Public* are grouped such land "uses" as municipal art museum, bible institute, blood banks, botanical gardens, disposal plants, detention homes, golf clubs, jails, and poorhouses. As far as fulfillment of purpose is concerned, it is evident that this classification system constitutes no better basis for the land use pattern des-

criptions of individual communities than does the previous one.

Let us consider one more case. In a recent volume on urban land use planning, F. Stuart Chapin, Jr., presents—as illustrative material—a partial list of "urban land uses" classified into the conventional categories commonly used in detailed land use map presentations."⁶

Upon examination we again find a system of classification which attempts to order generically-unlike units into groups each of whose members have no definable characteristics in common. For example, "office buildings," "airport property," and "wholesale assemblers"—that is, a type of structure, legal rights, and a type of establishment—are all mingled together as "urban land uses."

And here too the grouping of the several "land uses" into the broad classifications given yield strange results. Each broad classification is composed of two subclassifications, structures and areas. Thus under *Retail Business, Structures*, are such unrelated items as office buildings, bars, roller skating rinks, motels, newspaper plants, storage garages, curio shops, and barber shops; under *Retail Business, Areas*, are grouped such "urban land uses" as farm equipment sales lots, drive-in theatre grounds, tombstone display sales areas, and auto graveyards.

It is true that Chapin does question the usefulness of this system of land use classification but his concern stems only from the fact that it does not "reflect the detail and the organization of uses employed in the analytical procedures of land use planning"—that is, it does not serve to reflect one of the purposes for classifying land uses. For after going on to explain that: "... the conventional system must be divisible into subclasses

⁶F. Stuart Chapin, Jr., *Urban Land Use Planning* (New York: Harper and Brothers, 1957), p. 208.

⁷*Ibid.*

that are capable of recombination to form clusters of uses . . . [and] . . . it must be possible to break down the broad *functional categories* and lift out subcategories so that these may be regrouped with other subclasses or uses to form *analytical categories* or groups of spatially related uses which are then employed as analytical units in the land use planning process,"⁷ and after offering a land use classification system suitable for land use planning analyses, Chapin then observes that "for the purposes of preparing land use maps this classification system [his] is no substitute for the conventional functional system."⁸ Thus we may deduce that Chapin too approves of the use of this system for all other purposes. Further, inasmuch as all Chapin calls for in his criticism of this system is a realignment of the "urban land uses" involved, we can also deduce that his system—after the "urban land uses" have been properly realigned—would suffer from the same lumping together of generically unlike units which characterize the others.

And, finally, an examination of Chapin's own system reveals that it has little to offer in the way of improvement over the others. For example, on what basis can one hold that oil refineries, ship-building yards, railroad marshaling yards, quarries, etc. are all Industrial and Related Uses, Extensive Class, while retail group, office group (including wholesale agents and brokers), amusements, civic centers, transportation passenger terminals, etc. all constitute Region-Serving Retail and Related Uses, Central Business District? It would be most difficult to find some characteristic that the "urban land uses" in each of the above groups have in common.

To pursue this point further would serve no purpose. It is apparent that a

good deal of confusion and ambiguity pervades the area of urban land use classification today. Types of activities, types of structures, types of establishments, and legal rights are all lumped together as land uses; the principles of classification used do not operate to group like items, and the classifications themselves do not reflect the prime purpose which they are intended to serve—presumably to act as bases for the land use pattern descriptions of individual communities. And when we expand the scope of this area to include the descriptions of land use patterns—so-called land use maps—that stem from the use of the "conventional" systems of land use classification, we find even more confusion and ambiguity. Some observations made by Ernest M. Fisher and Robert M. Fisher concerning the well known concentric zone, sector, and multiple-nuclei land-use pattern descriptions serve well to indicate the unsatisfactory state in which this aspect of urban land use classification lies today. With respect to what are being classified:

" . . . the concentric zone, sector, and multiple-nuclei descriptions often fail to use the term land use clearly. Sometimes, 'land use' refers exclusively to the types of structures occupying various locations. The structures may be classified only by the purposes for which they were originally designed, and no reference may be made to areas covered by streets or parks. In other instances, the term 'land use' may pertain to the *predominant kind of activity* found within different structures (usually at street level) without reference to a major activity which is so characteristic of our cities—traffic or the horizontal movement of persons and goods."⁹

And, concerning the ways in which "urban land uses" are grouped:

" . . . for many purposes, these broad classifications are unsatisfactory. The descriptions

⁷ *Ibid.*, pp. 208-09.

⁸ *Ibid.*, p. 209.

⁹ Ernest M. Fisher and Robert M. Fisher, *Urban Real Estate* (New York: Henry Holt and Company, 1954), pp. 313-14.

ordinarily apply to the predominant land use at any given location—represented generally by the use of space at the street level. In doing so, they fail to account for any above-ground or below-ground uses of space which are so common in metropolitan areas. As a larger and larger percentage of air space is tapped in our modern cities, an increasing proportion of 'land use' takes place above ground rather than at street level. The rise of multi-storied buildings permits *different* land uses to be piled above each other on various floors at the same location. As a result, uses may be arranged vertically as well as horizontally."¹⁰

Indeed, most of the "land use" maps one finds today constitute partly real property inventories, partly land coverage maps, partly type of ownership maps (public or private sectors of the economy), and so on. But none constitute a *land use* map.

What then are urban land uses? How may they be classified to produce land use maps? The answer to the first question lies in a most astute observation made by Haig some thirty years ago:

"When one begins to seek the reasons for growth and decline in the center [of a metropolis], he is immediately impressed with the inadequacy of the terminology ordinarily used in discussing the problem. Broad terms such as 'industry,' 'manufacture,' 'commerce,' and 'trade' are not well adapted to the task in hand. If, for example, a silk mill, formerly located on Manhattan, moves to Pennsylvania but keeps its head office and salesroom in New York, it is not accurate to say that this 'industry' has left New York. What has actually happened is that there has been a territorial subdivision of functions which were formerly united in the same place, certain activities being sent to Pennsylvania and certain others kept in the metropolis. Fabrication and certain other functions have gone, but selling and many of the other functions remain. Fourth Avenue is full of establishments bearing the names of manufacturing plants, but no fabrication is in evidence. Though it is the center of the silk industry, not a loom is to be found there. Nor is the situation changed fundamentally if the establishment, instead of retaining its New York

office, delegates its selling to a jobber or agent operating in New York under his own name. The significant thing is the amount and the character of the activity which leaves, and the amount and the character of the activity which remains. If a Fifth Avenue merchant sends his buyer to open an office in Paris, transfers his reserve stocks to a warehouse on the waterfront, and places his alteration shop in Long Island City, it is misleading to say merely that the 'merchant' is located on Fifth Avenue. He has scattered his activities to many places. If the fact that his sign still graces the Avenue is accepted as the sole test of his location, significant facts will be entirely overlooked. Every business is a packet of functions, and within limits these functions can be separated and located at different places."¹¹

And some years later this most logical concept of land use was put in more precise terms; land use was defined as "the various activities performed within the standing stock on the surface of the land, underground, or in the air space overhead."¹² And, since "... activities are carried on by individuals or groups of persons occupying identifiable units of space at fixed locations . . . [the] 'land use' . . . [for any given site] means the activities customarily engaged in by . . . [the] establishment [or establishments operating at that site]."¹³ Therefore, "land use" relates to *activities* only and, when one enumerates the land use at a given site for the purpose of classification, he is concerned solely with the *activities* being performed at that site.

A solution to the problem posed by the second question was also suggested by Ernest M. Fisher and Robert M. Fisher:

"The general land-use pattern, consequently, can be described according to the geographic distribution of establishments performing various types of activities in a community. For any given type of activity, a

¹⁰ Robert M. Haig, *Major Economic Factors in Metropolitan Growth and Arrangement* (New York: Committee on Regional Plan of New York and its Environs, 1928), pp. 36-37.

¹¹ Ernest M. Fisher and Robert M. Fisher, *op. cit.*, pp. 314-15.

¹² *Ibid.*, p. 315.

¹³ *Ibid.*, p. 313.

specific land-use pattern can be studied by plotting on a map the location of all establishments carrying on that activity. Since each activity ordinarily has a geographic distribution of its own, the general land-use pattern is made up of many interwoven overlapping-unique specific patterns. Only by sorting out the various activities individually can their arrangements and relationships be traced."¹⁴

And, everyday activities may be divided into external (among establishments) and internal (within establishments). By categories, external activities include: (A) retailing; (B) wholesaling; (C) financial and administrative; (D) manufacturing; (E) governmental; (F) residential; (G) educational, recreational and cultural; and (H) intracity transportation use patterns.¹⁵ Thus we have a way out from the confusion and ambiguity that have long characterized urban land use classification; this method *will* produce urban land use maps.¹⁶

However, a land use map is merely a means to an end, rather than an end in itself. It is merely a convenient device for describing the geographical distribution of establishments performing activities within a community. And a shift in the principle of classification employed in classifying land uses within any community will result in a shift in these patterns of geographical distributions—that is, every different principle of classification employed in classifying land uses within a community will yield a different land use map. The most useful principle of classification would be the one which results in a land use map for each community revealing the *unique internal organization of that community by which its goods, services, and ideas are produced, distributed, and consumed*. Al-

though the method of classifying urban land uses suggested by Fisher and Fisher represents a conceptual breakthrough and is far superior to those which have preceded it, it clings to virtually the same broad principle of classification which characterizes the "conventional" systems and, consequently, does not achieve this desired result. For this reason an attempt was made to derive a principle of classification which will do the job by more closely reflecting the *modus operandi* of urban communities.

Following is material illustrative of this proposed principle of classification—a tabulation of primary types of activities and, for each, a few types of establishments which correspond to it. Thus, by grouping establishments in accordance with this principle of classification, it may be possible to produce land use maps which will really attain what is usually expected of them.

PRIMARY ACTIVITIES AND TYPES OF ESTABLISHMENTS
WHICH CORRESPOND TO THEM

Primary Activity	Corresponding Types of Establishments
Advising	Accountant Consultant, all types
Assembling	Lodge Y.M.C.A.
Buying	Buyer Residence Buyer
Cleaning	Dry Cleaner Laundry
Communicating	Broadcasting and Receiving Station Newspaper Publishing Establishment
Designing and/or Drawing	Architect, all types Engineer, all types
Dining and/or Drinking	Cocktail Lounge Restaurant
Displaying	Art Gallery Museum
Dwelling	
Housekeeping	Family Unit Trailer Camp
Non-housekeeping	Hotel Rooming House
Entertaining (or Playing)	
As Spectators	Athletic Field Motion Picture House

¹⁴ *Ibid.*

¹⁵ *Ibid.*

¹⁶ Ideally, of course, land use maps should be three dimensional to reflect the three dimensionality of modern land use patterns but to produce such maps graphically would involve the solution of many technical problems.

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Station Assignment

The Transportation Act of 1958

By ROBERT W. HARBESON*

THE Transportation Act of 1958 represents the most extensive revision of transport regulation since the Transportation Act of 1940. While a considerable number of measures affecting both rail and motor carriers have been enacted since the latter date they have in almost every instance consisted of amendments to, or revisions of, individual sections of the Interstate Commerce Act.¹ The 1958 law presents some significant parallels to the Emergency Transportation Act of 1933. To a large extent the occasion for both measures was the financial distress of the railway industry caused by a general decline in the level of economic activity superimposed upon unfavorable long-run traffic and financial trends. Both measures contain temporary provisions designed to provide emergency financial relief for the railways as well as permanent amendments designed to strengthen their long-run financial position. In both measures revision of the rule of rate making in Section 15a of the Interstate Commerce Act was an important objective.

A glance at the financial condition of the railway industry during the period immediately preceding enactment of the 1958 law reveals the need for some sort of legislative action. The rate of return of Class I railways declined from 3.71 percent for the twelve months ending in June 1957 to 2.57 percent for the twelve months ending in June 1958. Net income after interest and rentals declined from \$346 million for the first six months of 1957 to an estimated \$125 million for

the corresponding period in 1958. Thirty-five Class I railroads—roughly one-third of the total number—failed to earn interest and rentals in the first six months of 1958, of which twenty-one were in the Eastern District, six in the Southern Region, and eight in the Western District. The financial situation of the eastern railroads is more serious than that of roads in the other areas. Whereas the railroads in the Southern Region and Western District, taken by groups respectively, earned a net income after interest and rentals in the first six months of 1958, albeit sharply reduced by comparison with the corresponding period of 1957, the railroads in the Eastern District, as a group, reported a deficit of \$27 million as compared with a net income of \$134 million for the corresponding period in 1957. The poorer showing of the eastern roads is attributable in part to their greater sensitivity to declines in industrial production, such as occurred in 1957-58, but more fundamentally to higher costs of operation, more severe competition from other modes of transportation, and the fact that they account for the major part of the loss on passenger business, especially the commutation business. For the railroads as a whole the recent decline in the level of economic activity has aggravated the effect of the long-run decline in their share of the total freight and passenger traffic. Between 1946 and 1956 the railroads' share of the total intercity freight ton miles (excluding coastwise and intercostal shipping) declined from approximately two-thirds to less than one-half and their share of the for-hire intercity passenger miles from two-thirds to a little over one-third.

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¹ An exception is the extension of the jurisdiction of the Interstate Commerce Commission to include freight forwarders by the addition of Part IV to the Interstate Commerce Act.

In an effort to relieve the immediate financial difficulties of the railroads the 1958 law provides for the addition of a new Part V to the Interstate Commerce Act, the stated purpose of which is to assist railroads in acquiring, constructing, or maintaining facilities and equipment in order to maintain employment and to preserve and develop an adequate national transportation system. To this end the Interstate Commerce Commission is authorized, upon terms and conditions prescribed by it, to guarantee in whole or in part the principal and interest of loans made by public or private agencies to the railroads for the purpose of financing or refinancing additions and betterments or other capital expenditures made after January 1, 1957, or for reimbursing railroads for expenditures from their own funds for these purposes, or to cover expenditures for the maintenance of property. The aggregate principal amount of the loans guaranteed may not exceed \$500 million and the Commission's authority to guarantee loans expires on March 31, 1961, except with respect to applications pending on that date.

Proposals to permit the guarantee of loans made to cover operating expenses other than for maintenance, to limit the guaranty of loans for maintenance to 50 percent of the amount charged to maintenance in the preceding year, and to make the guarantees available to all common carriers subject to economic regulation by the Interstate Commerce Commission (except deep-sea shipping) were omitted from the bill as finally passed. The \$500 million limit was agreed to in place of a Senate proposal to establish a \$700 million limit and a House proposal to omit establishment of a limit.

The loan guaranty authority is surrounded by a number of safeguards.

Thus the Commission may not guarantee a loan unless it finds that the carrier would otherwise be unable to obtain necessary funds on reasonable terms and unless it finds that "the prospective earning power of the applicant carrier, together with the character and value of the security pledged, if any, furnish reasonable assurance of the applicant's ability to repay the loan within the time fixed therefor and reasonable protection to the United States." (Section 504a). Likewise loans may not be guaranteed if in the Commission's judgment the rate of interest is unreasonably high or if the terms of the loan permit full repayment more than fifteen years after the date of the loan. A statement of the findings of the Commission with respect to the foregoing matters must be made a matter of public record with respect to each loan guaranteed. No railroad may declare any dividend on its preferred or common stock while there is any principal or interest unpaid on any guaranteed loan made for the purpose of financing or refinancing expenditures for the maintenance of property. The Commission is authorized to consent to the modification of the terms of any guaranteed loan whenever it determines that it is equitable to do so. In the event of default on a guaranteed loan the Attorney-General is directed to take appropriate action to recover, with interest, payments made under the loan guaranty.

The Commission is directed to prescribe and collect, for the benefit of the Treasury, a guaranty fee in connection with each loan guaranteed in an amount no greater than necessary to cover the administration of this part of the law. It is also authorized to secure expert advice and assistance from other agencies of government in connection with the administration of the loan guaranty pro-

visions, with the consent of such agencies and on a reimbursable basis.

Precedents for the loan guaranty device may be found in federal legislation relating to the merchant marine and feeder airlines as well as in other fields. However, the difficulty with this device, at least so far as the present law is concerned, is that it attempts to attain objectives which are to a considerable extent contradictory. On the one hand the loan guaranty provisions of the 1958 law are available only to carriers which would otherwise be unable to arrange financing on reasonable terms; on the other hand the safeguards attached indicate a clear intent that the measure is not to be a "giveaway." It seems reasonable to conclude that at least a majority of railroads which would otherwise be unable to arrange financing on reasonable terms would also be unable to qualify for a guarantee under a strict interpretation of Section 504a, described above; conversely it seems likely that most roads which could meet the latter test would be able to borrow without the guaranty. Hence, if the safeguards are strictly interpreted, the extent of relief available may not be great while if they are liberally interpreted the guaranty program will become a "giveaway" to the extent that such interpretation results in losses to the government as guarantor. The success of the program will therefore depend upon the degree to which the commission is able to accomplish the difficult task of evolving a middle-of-the-road approach which will minimize the disadvantages of both too strict and too liberal interpretation of the loan safeguarding provisions. It may be added that, initially at least, the carriers have displayed very little interest in the loan guaranty provisions of the law. As of February 2, 1959, only the New Haven, Boston and Maine, New York, Susque-

hanna and Western, and Georgia and Florida railroads had applied for loan guarantees. The application of the New York, Susquehanna and Western was later withdrawn on the ground that the road's improved financial position made the guarantee unnecessary.²

Turning next to the permanent changes in the Interstate Commerce Act made by the 1958 law, which are designed to strengthen the long-run financial position of the railway industry, the most important, in principle, is the amendment to Section 15a, the so-called rule of rate making. The amendment consists of the addition to this section of the following paragraph:

"(3) In a proceeding involving competition between carriers of different modes of transportation subject to this Act, the Commission, in determining whether a rate is lower than a reasonable minimum rate, shall consider the facts and circumstances attending the movement of traffic by the carrier or carriers to which the rate is applicable. Rates of a carrier shall not be held up to a particular level to protect the traffic of any other mode of transportation, giving due consideration to the objectives of the national transportation policy declared in this Act."

This amendment was the result of a long and acrimonious debate in the hearings both on the present law and on the earlier Report of the Presidential Advisory Committee on Transport Policy and Organization, concerning the desirability of permitting more freedom in competitive rate making as between different agencies of transportation. Railroad representatives and the Presidential Advisory Committee contended that the Commission's powers over rate reductions resulting

² *Wall Street Journal*, October 14, 1958, p. 2, November 5, 1958, p. 20, December 3, 1958, p. 15, February 2, 1959, p. 6; *Railway Age*, February 16, 1959, p. 7. See also "Guaranteed Loans Find Few Takers," *Railway Age*, August 18, 1958, p. 9; "ICC Member Urges Rails to Seek Federal Guarantees for Loans," *Wall Street Journal*, October 10, 1958, p. 20; "Tuggle Chides Roads on U. S. Loans," *Railway Age*, October 13, 1958, p. 14.

from inter-agency competition should be limited to preventing non-compensatory and unjustly discriminatory rates, while representatives of motor and water carriers contended that the purpose and effect of such a policy would be to permit cut-throat competition by the railroads to eliminate their competitors.

The basis of these conflicting viewpoints is to be found in differences in certain economic characteristics of the competing types of carriers. So long as there is unused capacity, railways—because of their heavy fixed costs—are able to reduce rates considerably below a full unit cost basis and still earn a margin over out of pocket costs. Under these circumstances it is profitable from the standpoint of the individual carrier to make such reductions, which not only increase net revenue but result in fuller utilization of plant and consequently lower average unit cost. Conversely, motor and water carriers, especially the former with their relatively smaller fixed costs, have little leeway to reduce rates below a full unit cost level except perhaps on back hauls. Hence the question of what constitutes the proper degree of freedom in inter-agency rate competition becomes a question of the extent to which railways should be permitted to take advantage of their greater ability to reduce rates below a full unit cost basis.

From an economic standpoint it can be stated with confidence that the extreme positions taken by representatives of both the railways and the motor and water carriers with respect to this question are unsound, but it is much more difficult to say what the policy in this matter should be. Since individual markets for transportation service, whether by rail, motor, or a combination of both, are oligopolistic in character, some type of control over rate making is required in the public interest. In the

absence of outside control price competition in such markets is either restrained by the self-interest of the firms concerned, resulting in charges above a purely competitive level or, when it becomes active, is likely to take the form of price wars characterized by chaotic price instability, discrimination, and prices below a purely competitive level. Railways would have a decided advantage over motor and water carriers in rate wars because of the economic characteristics just mentioned, coupled with greater financial resources and a backlog of non-competitive traffic, with the result that traffic would be diverted to the railways which from a long-run standpoint could be handled more economically by other carriers. Adoption of the railroads' proposal that rate reductions be allowed so long as they are compensatory and not unjustly discriminatory would mitigate but by no means correct this situation. Competitive rate reductions tend to ramify widely throughout a rate structure and if a large number of rates are depressed to a level at or near out of pocket cost revenues would fail to yield a normal competitive return and traffic would be uneconomically diverted even though the individual rates in question met the compensatory test in every case.

The position taken by representatives of the motor and water carriers is no more defensible. Whereas adoption of the railroads' position would permit an undesirable kind and degree of price competition, adoption of the motor and water carrier position would result in the nearly complete suppression of price competition. To the latter, defensible and lasting competition is considered to be almost entirely non-price or service competition; price competition is regarded as *prima facie* "destructive" or "cut-throat," or at least suspect. The policy of rate parity between competing forms

of transportation which this view implies enables the motor carriers to retain the full benefit of the inherent service advantages which they possess with respect to a wide range of competitive traffic while denying railways the opportunity to make rates which reflect the inherent cost advantage which they possess with respect to correspondingly large segments of competitive traffic and also denying shippers the opportunity to balance rate and service advantages in choosing a carrier. Such a policy is a form of umbrella rate making which would result in an uneconomical division of traffic in violation of a principal objective of the Declaration of National Transportation Policy.

Thus the task which confronts the Interstate Commerce Commission in regulating interagency rate competition is to steer a course which avoids both the Scylla of rate wars and the Charybdis of umbrella rate making. It is a task, moreover, for which economists are able to suggest few precise rules as policy guides, at least so long as the present type of rate structure is retained. Where the out of pocket cost of the high cost carrier is above the fully allocated cost of the low cost carrier, recognition of the principle that traffic should be distributed in accordance with the inherent advantages of different types of carriers would require a rate differential which would eliminate the high cost carrier, except to the extent that it possessed service advantages which outweighed the rate disadvantage to shipper. By far the most common situation, however, is one in which it is possible for the high cost agency to reduce rates to a level below the fully allocated cost of the low cost agency and still earn a margin above out of pocket cost. Where the high cost carrier has un-utilized capacity and the low cost carrier is fully utilized the out of

pocket cost of handling additional traffic may be less for the high cost than for the low-cost carrier, since the latter would have to enlarge its plant and the former would not; under these circumstances it would be desirable to allow the high cost carrier to secure the additional traffic by quoting rates which are below its fully allocated cost and above its out of pocket cost. But in the more usual situation where both high and low cost carriers have un-utilized capacity the Commission faces a more difficult problem in determining the extent to which the high cost carrier should be permitted to reduce rates below its fully allocated cost. The decision must necessarily rest upon a judgment which involves (1) weighing the economic advantage of the particular reduction to the high cost carrier against the danger of precipitating a wave of competitive reductions which might result in a general depletion of carrier revenues even though the rates considered individually were compensatory, and (2) weighing the extent to which the public policy presumption in favor of maintaining inter-agency competition should prevail against the economic advantage of moving traffic by the agency having the lower direct cost, in those instances where the direct cost of the high cost agency is above the direct cost of the low cost agency.

The exhaustive analysis of Interstate Commerce Commission policies with respect to rail-motor rate competition recently published by Professor E. W. Williams, Jr. concludes that the Commission, with exceptions, has adopted the rate parity policy urged by motor and water carrier interests and has consequently prevented the railroads from establishing rates which reflect their inherent cost advantage with respect to important segments of traffic. The validity of this conclusion is, of course,

stoutly denied by the Commission, as well as by motor carrier interests and some others. Professor Williams' comments are worth noting in this connection:

"With respect to the relationship of rail to motor-carrier rates the Commission seemingly has been moved by a desire to preserve both types of transportation in virtually the whole range of service they had come to occupy at the time its jurisdiction was broadened. Consequently it has given large emphasis to the preservation of the opportunity to compete and to secure a "fair" share of the traffic. . . . It appears that the Commission has not knowingly forced either type of carrier out of any segment of the business by its exercise of rate regulatory powers. It has endeavored, instead, to hold rates within margins which permitted both types to continue in the business, although one or another might face a partial diversion of traffic or be compelled to take business at barely compensatory rates. Even when it has been fairly obvious that one type is able to handle the particular traffic at materially lower costs than the other, it has not permitted this type to undercut sufficiently to secure the whole traffic. The entire set of principles which the Commission has attempted to apply does not conduce to this result. . . . In so far as it has applied any principles they seem to be most often that the average full cost of motor carriers, sometimes including allowance for return, will fix the minimum level of rates over the range of traffic which motor carriers choose to handle. . . . The railroads, with exceptions, are not generally permitted to go below the level thus looked upon with approval for motor carriers, even when a showing of costs upon any of the accepted bases would indicate rail costs below the motor-carrier level."³

This policy, says Professor Williams:

"is consistent with keeping everyone in the business. It does not, however, contribute to the development of a more economic division of the traffic, to coordination of the services, or to the development of economy in the handling of the available business. And it

extends great encouragement to the growth of private and exempt trucking to the detriment of all common carriers, although the growth of such trucking falls with particular severity upon the railroads."⁴

The foregoing summary of the economic aspects of inter-agency rate competition and of the Commission's policy with respect thereto may throw some light on the legislative history of the amendment to Section 15A and may afford some basis for evaluating the significance of this amendment. The desirability of revising or amending the existing statutory provisions governing the regulation of inter-agency rate competition was first considered by a Subcommittee on Surface Transportation of the Senate Committee on Interstate Commerce. This Committee rejected the railroads' proposal that the Commission's authority over rate reductions resulting from inter-agency competition be limited to preventing non-compensatory and unjustly discriminatory rates on the ground that it conflicted with the prohibition of unfair or destructive competitive practices in the Declaration of National Transportation Policy. On the other hand, it criticized the Commission for not consistently adhering to the principle of allowing each agency of transportation to assert its inherent advantages, whether of service or of cost. It held that the following statement of the Commission in the *New Automobiles* case of 1945 properly interpreted the intent of Congress with respect to this matter:

"As Congress enacted separately stated ratemaking rules for each transport agency, it obviously intended that the rates of each such agency should be determined by us in each case according to the facts and circumstances attending the movement of the traffic by that agency. In other words, there appears no warrant for believing that rail rates, for example, should be held up to a particular

³ E. W. Williams, Jr., *The Regulation of Rail-Motor Rate Competition* (New York: Harper and Brothers, 1958), pp. 210-14.

⁴ *Ibid.*, pp. 214-15.

level to preserve a motor-rate structure or vice versa."⁶

The Subcommittee therefore concluded that it was:

"necessary to amend the act only so as, in effect, to admonish the Commission to be consistent in following the policy enunciated in the Automobile case thus assuring reasonable freedom in the making of competitive rates."⁶

To this end it recommended that the following paragraph be added to Section 15A:

"In a proceeding involving competition with another mode of transportation, the Commission, in determining whether a rail rate is lower than a reasonable minimum rate, shall consider the facts and circumstances attending the movement of the traffic by railroad and not by such other mode."⁷

The Subcommittee was not unanimous in this recommendation, some members holding that the proposed amendment did not give sufficient freedom for making competitive rates.

Upon consideration of the foregoing recommendation of the Subcommittee the full membership of the Senate Committee on Interstate Commerce decided to hold further hearings on the question of amending Section 15A. At these hearings representatives of the motor and water carriers and of the Interstate Commerce Commission strongly opposed the amendment proposed by the Subcommittee on the ground that it would open the way to rate wars and hence conflicted with the prohibition of unfair or destructive competitive practices in the Declaration of National

Transportation Policy. Chairman Howard G. Freas, speaking for the Interstate Commerce Commission, contended that the phrase "and not by such other mode" in the proposed amendment could be so construed as to permit the degree of freedom in rate reduction called for in the railroads' proposal despite the explicit rejection of the latter by the Subcommittee, and that the resulting uncertainty concerning the intent of the amendment would invite prolonged litigation. He brought out very clearly the issues presented by the amendment, as follows:

"We cannot determine from the subcommittee's quotation from the Commission's 1945 report in *New Automobiles in Interstate Commerce* (259 ICC 475), what would be the intended practical effect of the proposed amendment upon ratemaking. The real questions are (1) whether Congress desires to give to the high-cost carrier in every competitive rate situation complete discretion to establish any rates which cover its out-of-pocket costs without regard to its effect upon the ability of the low-cost carriers to move the particular traffic at rates which cover all of their cost, and (2) whether and to what extent Congress desires to prohibit the maintenance of minimum rates on high value commodities at a level higher than would be justified by cost considerations alone.

"We respectfully submit that these issues are too important to both carriers and shippers to be left in doubt. If, contrary to our recommendation, Congress determines to amend the rule of ratemaking in section 15A we urge that the intended effect be made clear, rather than left to years of litigation, which would be bound to result from the bill's uncertainty and from the fact that it appears to treat different modes of transportation differently."⁸

A second objection raised by Commissioner Freas was that the amendment was so drawn as to be limited to railroads whereas to be consistent with the De-

⁶ *New Automobiles in Interstate Commerce*, 259 ICC 475 (1945), at p. 538. Quoted in *Problems of the Railroads*, Report of the Subcommittee on Surface Transportation of the Senate Committee on Interstate and Foreign Commerce, 85th Congress, 2nd Session (Washington, D. C.: Government Printing Office, 1958), p. 12. Hereafter cited as Subcommittee Report.

⁷ Subcommittee Report, p. 12.

⁸ *Ibid.*, p. 12.

⁸ *Ratemaking Rule—ICC Act*, Hearings before the Senate Committee on Interstate and Foreign Commerce, 85th Congress, 2nd Session, on S. 3778 (Washington, D.C., Government Printing Office, 1958), pp. 167-68.

⁹ *Ibid.*
¹⁰ *Trans*
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claration of National Transportation Policy it should be made applicable to all forms of transportation and to intra-agency as well as inter-agency competition. Finally, he stated that it was the Commission's view that no amendment to Section 15A was required, but that if an amendment was believed to be necessary the following was suggested:

"In a proceeding involving competition between carriers, the Commission, in determining whether a proposed rate is lower than a reasonable minimum rate, shall consider the facts and circumstances attending the movement of the traffic. Rates of a carrier shall not be held up to a particular level to protect the traffic of a less economic carrier, giving due consideration to the inherent cost and service advantages of the respective carriers."⁹

The full Committee, after hearing the foregoing and other testimony, revised the proposed amendment to reflect both of the objections raised by Commissioner Freas. In addition, significantly, it added the phrase "giving due consideration to the objectives of the national transportation policy declared in this Act," which motor carrier interests had contended should be included, apparently to insure that the prohibition in the policy declaration against unfair or destructive competitive practices would be construed as a restriction on rate reductions. The Committee stated that under the revised amendment "the principal emphasis, but not the exclusive emphasis, in a competitive ratemaking proceeding involving different modes of transportation will be on the conditions surrounding the movement of the traffic by the mode to which the rate applies."¹⁰

What is the significance of the amendment to Section 15A in the light of the

foregoing review of its legislative history? It is difficult both to determine the intent underlying the amendment and to predict its practical effect. The only purpose which the writer can discover in the amendment is to direct the Commission, in passing upon inter-agency rate relationships, to give the carriers somewhat more freedom than formerly to make rate reductions which reflect cost advantages, provided, however, the result is not to eliminate so many competitors as to give rise to the charge that unfair or destructive competitive tactics are being permitted. This seems to be the implication of the statement of the Senate Committee, quoted above, to the effect that in rate cases involving inter-agency competition the principal but not exclusive emphasis should be on the conditions surrounding the movement of traffic by the agency to which the rate applies. If this interpretation of the legislative intent is correct the amendment is open to the objection (1) that it is too vague and, to some extent, contradictory to be effective and (2) that it is unnecessary in view of the Commission's powers under the present law. However, no other result could be expected under the circumstances. The amendment represents an attempt to prescribe a rule to guide the Commission in performing a task which can be reduced to rules only to a limited extent and with respect to which the appropriate role of Congress is limited to prescribing only the broad outlines of policy. The hearings and committee reports indicate that Congress desired to lay down a rule which would simultaneously result in a rate structure which reflected the inherent advantages of each agency of transportation, maintain inter-agency competition in most transport markets, and prevent each agency's earnings from falling below a normal competitive level. As the analysis

⁹ *Ibid.*, p. 169.

¹⁰ *Transportation Act of 1958*, Report of Senate Committee on Interstate and Foreign Commerce on S. 3778, 85th Congress, 2nd Session, Senate Report No. 1647 (Washington, D. C.: Government Printing Office, 1958), pp. 3-4.

of the problem of regulating inter-agency rate competition, summarized above, indicates, these objectives are in varying degrees conflicting and the determination of inter-agency rate relationships is necessarily based upon a judgment concerning the relative weight which should be given to each of these objectives in a particular situation. This is clearly a task for the Commission rather than for Congress.

In any event, the practical effect of the amendment will depend upon the interpretation given to it by the Commission and perhaps ultimately by the Courts. It is quite possible that the amendment may cause the Commission to give greater weight to the advantage of permitting rate reductions which reflect cost advantages and less weight to the advantage of maintaining inter-agency competition in each transport market. On the other hand, it may be pointed out that if the Commission desired to adopt such a policy it could have done so under the existing law and that in view of the vagueness of the amendment, the uncertainty concerning legislative intent, and the broad scope of administrative discretion permitted by the courts it could continue its present policies unchanged without being open to the charge of disobeying its governing statute. At least one Commissioner has expressed the personal (not official) opinion that it is doubtful whether the amendment "represents any considerable change in the Commission's powers or requires any substantial revision of the Commission's interpretation of its powers," and that it "prohibits the Commission from doing only that which it takes the position it does not do anyway."¹¹ The only thing that is clear is that we may expect an

extended period of uncertainty, and probably litigation, concerning the application of the revised Section 15A in the area of inter-agency rate regulation.

Two other provisions of the law deal with problems of inter-agency competition. One of these is the revision and limitation of the so-called agricultural exemption in Section 203b. The stated purpose of the amendment is to freeze the agricultural-commodities exemption in accordance with Ruling No. 107 of the I.C.C. Bureau of Motor Carriers, dated March 19, 1958, with certain additions and deletions. The following exempted commodities are returned to regulation: frozen fruits, frozen berries, frozen vegetables, cocoa beans, coffee beans, tea, bananas, hemp, wool imported from any foreign country, wool tops and noils, and wool waste which has been carded, spun, woven, or knitted. Removed from regulation is the transportation of cooked or uncooked (including breaded) fish or shellfish when frozen or fresh, but not including fish and shellfish which have been treated for preserving, such as canned, smoked, pickled, spiced, corned, or kippered products. A so-called grandfather clause is included, whereby carriers which on May 1, 1958 were engaged in transporting commodities which have been returned to regulation would be entitled, upon application, to certificate or permit allowing them to continue the transportation of the same commodities within the same areas or between the same points.

The interpretation of the agricultural-commodities exemption has given rise to administrative difficulties and considerable litigation. The Commission has tended to construe the exemption strictly whereas the courts have interpreted it in such a way as to create a steadily in-

¹¹ "New Transportation Act is 'Long Step in Right Direction,' Hutchinson Says," *Traffic World*, August 23, 1958, p. 26.

creasing list of exempt commodities.¹² The Commission in its 1957 Annual Report pointed out that the resulting uncertainty concerning the scope of the exemption has adversely affected plans of regulated carriers for expanding and improving service and urged that legislation be enacted which would demarcate the scope of the exemption as clearly as possible.¹³ The amendment in the present law should materially assist in attaining this objective and may also prove to be of modest benefit to regulated carriers by returning certain exempt commodities to regulation and by checking the further extension of exemption by administrative or judicial interpretation. However, there is one ambiguity in the law which might permit further exemptions. It is provided that the exemption shall include property listed as exempt in Ruling 107 and shall not include property shown as not exempt in that Ruling but makes no provision for products not listed therein. The Ruling does not purport to include a complete list of commodities covered by the exemption but only a list of commodities the exempt or non-exempt status of which had been the subject of a court or Commission decision together with other commodities concerning the status of which the Bureau of Motor Carriers was prepared to express an opinion. Hence the status of commodities not listed in the Ruling remains uncertain, although fortunately the num-

ber of such commodities is probably small.

The proper scope of the agricultural exemption is controversial. The basic justification for the exemption is that, otherwise, in view of the route limitations of railroads and the operating authority restrictions of regulated motor carriers, there would not be a sufficiently flexible and readily available supply of vehicles for handling the irregular and seasonal movements of agricultural products from farms to markets and processing points. It is generally agreed, except by some railroad representatives, that the foregoing consideration provides a strong case for the exemption of movements from farms to primary markets or to the point of first off-the-farm processing or storage, i.e., up to the point where the commodities enter the channels of commerce. It is the inclusion within the exemption of movements beyond those mentioned which is controversial. On the one hand, it is contended that the same considerations which justify exemption of the initial movements of agricultural commodities to primary markets—the need for flexibility of routing and supply of vehicles—also make essential the exemption of the subsequent movements of these commodities. In particular, it is said that reliance upon regulated motor carriers would not provide sufficient flexibility because of the limitations imposed upon diversion and reconsignment arrangements by reason of route and territory restrictions in certificates and permits and the limited availability of equipment interchange.

On the other hand, the Commission maintains that extending the exemption beyond the initial movements to primary markets may give competitive advantages to commercial interests but with no demonstrable benefits to the farmers for whose protection the exemption was

¹² See *East Texas Motor Freight Lines v. Frozen Food Express*, 351 U. S. 49 (1956), *Home Transfer and Storage Co. v. U. S. and I.C.C.*, 352 U. S. 884 (1956), *Frozen Food Express v. U. S.*, 355 U. S. 6 (1957).

¹³ Interstate Commerce Commission, 71st Annual Report (Washington, D. C.: Government Printing Office, 1957), pp. 138-39.

That the latter consideration may become of less significance in the immediate future is suggested by the fact that the Interstate Commerce Commission has recently given conditional approval to a nationwide motor equipment interchange agreement which initially included 335 carriers. The number of participating carriers was subsequently increased to over 365. See *Traffic World*, November 1, 1958, pp. 71-72.

originally intended.¹⁴ There is also evidence that in some cases exemption of the movements in question has resulted in unsound conditions in the trucking of agricultural commodities. For example, the National Association of Frozen Food Packers advocated returning the transportation of frozen foods to regulation on the ground that exemption resulted in the disruption of rate structures, disorderly marketing conditions, and unstable carrier revenues, with the further consequence that the supply of vehicles for transporting frozen food was inadequate and unreliable.¹⁵ Furthermore, the impairment of common carrier service under these conditions works an especial hardship upon small shippers, including many farmers, who are dependent upon such service. Whether or not there would be a balance of advantage in restricting the exemption in accordance with the channels of commerce principle can not be conclusively determined until there is undertaken a comprehensive and disinterested study of the need for and effects of the exemption in its present form.¹⁶

The other provision of the new law which deals with a problem of inter-agency competition is that which amends the definition of a private carrier by adding to Section 203(c) the words:

"nor shall any person engaged in any other business enterprise transport property by motor vehicle in interstate or foreign commerce for business purposes unless such transportation is within the scope, and in furtherance, of a primary business enterprise (other than transportation) of such person."

¹⁴ Interstate Commerce Commission, 70th Annual Report (Washington, D. C.: Government Printing Office, 1956), p. 162, 71st Annual Report, *op. cit.*, p. 138.

¹⁵ E. W. Smykay, "An Appraisal of the Economics of Scale in the Motor Carrier Industry," *Land Economics*, May, 1958, p. 148.

¹⁶ For a good analysis favorable to the present exemption see C. H. Fulda, "Competition vs. Regulation: The Agricultural Exemption in the Motor Carrier Act," *Vanderbilt Law Review*, March 1958, p. 543.

The purpose of this amendment is to eliminate various subterfuges whereby de facto transportation for hire is carried on under the guise of private carriage. The most common subterfuge is the so-called buy-and-sell method of operation under which bills of sale and other documents are issued to make it appear that commodities being transported are those of the vehicle owner when in fact the transaction is a device to carry on transportation for hire without securing a certificate or permit. Another device is the back-hand method of operation employed by firms which use their own trucks to deliver goods which they manufacture, under which merchandise is purchased at or near the point of delivery for transportation back to a point near their own terminal for sale to others, such transportation being undertaken solely for the purpose of receiving compensation for otherwise empty return movement of their trucks.

The Commission has expressed concern with regard to the rapid growth of these practices— which deplete the revenues of regulated carriers and result in discrimination among shippers, and which avoided payment of the freight transportation excise tax when it was in effect. An effort was made to cope with this problem by Public Law 85-163, approved August 22, 1957, which prohibited (except as otherwise specifically provided) any for-hire transportation by motor vehicles in interstate or foreign commerce without a certificate or permit authorizing such transportation. However, it was felt that the present amendment was necessary to eliminate any loopholes which might remain. The amendment writes into the law the primary business test of private carriage upheld by the Supreme Court in the *Brooks Transportation Company* case.¹⁷ This

¹⁷ *Brooks Transportation Co. v. U. S.*, 340 U. S. 925 (1951).

test has been supported by representatives of private carriers and it seems unlikely that the amendment will interfere with bona fide private carriage.

The two remaining provisions of the law deal with problems of federal-state relationships in the regulation of transportation. One of these provisions amends Section 13(4), which authorizes the Interstate Commerce Commission to alter intrastate rates which result in unjust discrimination against interstate commerce. Three changes are made in this section. The first adds language designed to remove doubts raised by the courts as to whether a finding by the Commission that the rates under complaint result in undue burdens upon interstate commerce is sufficient to support a finding of unjust discrimination within the meaning of this section. The second change provides that the Commission may establish a finding of unjust discrimination against interstate commerce "without a separation of interstate and intrastate property, revenues, and expenses and without considering in totality the operations or results thereof of any carrier, or group or groups of carriers wholly within any state." This amendment was designed to overrule two Supreme Court decisions handed down early in 1958 which held that a particular intrastate rate or set of rates could not be found to result in unjust discrimination against interstate commerce without taking into account the financial results of the entire intrastate operations, freight and passenger, of the carrier concerned.¹⁸ The result of these decisions, had they been allowed to stand, might have been a very serious reduction in the effectiveness of this section of the law. The final change is designed to expedite proceedings under this section. At present it is

the general practice of the carriers to await final action by state authorities before filing a petition with the Interstate Commerce Commission, and this practice has been encouraged by the latter as part of a policy of comity in relations with state authorities. The result, however, has frequently been burdensome delays for the carriers. Hence, the amendment provides that in cases arising under this section the Commission "shall forthwith institute an investigation" regardless of whether the matter has been considered by, or is pending before, any state agency or authority, "and shall give special expedition to the hearing and decision therein." The foregoing changes should materially enhance the effectiveness of this section of the law.

A final provision of the law adds a new Section 13a to the Interstate Commerce Act, granting the Commission jurisdiction in the field of discontinuance or change of rail services and facilities similar to the jurisdiction which it already had over intrastate rates under Section 13. Prior to the amendment the Commission had jurisdiction over the complete abandonment of a "line of railroad" and over the supply of freight train service and facilities but no jurisdiction over passenger train service. The amendment in question closes this gap in the Commission's authority. The provisions applicable in the case of trains or ferries which cross state lines differ from those which apply to trains or ferries operating wholly within the borders of a state.

Any carrier whose rights with respect to the discontinuance or change, in whole or in part, of the operation or service of any train or ferry operating across state lines are subject to the provisions of any state constitution or statute or to the orders of any state regulatory authority is permitted, but not required, to invoke

¹⁸ *C. M. St. P. and P. R. R. Co. v. State of Illinois*, 355 U. S. 300 (1958), *Public Service Com. of Utah v. U. S.*, 356 U. S. 421 (1958).

the jurisdiction of the Interstate Commerce Commission upon filing with it 30 days' notice of the proposed discontinuance or change. Similar notice must also be given to the governors of the states concerned and to the public. The carrier may then proceed with the contemplated action unless otherwise ordered by the Commission, regardless of any state statutory or constitutional requirement or of any order of, or pendency of proceedings before, any court or state authority to the contrary. During the 30-day period of notice the Commission is authorized upon complaint or upon its own motion to institute an investigation of the proposed action. If such an investigation is instituted the Commission may, by order served at least 10 days prior to the date on which the discontinuance or change would have become effective, require the continued operation or service of the train or ferry pending hearing and decision for a period of not to exceed four months beyond the proposed effective date of the discontinuance or change. If the Commission finds in its investigation that the operation or service in question is required by public convenience and necessity and will not unduly burden interstate or foreign commerce it may require the operation or service of the train or ferry to be continued or restored, in whole or in part, for a period of not to exceed one year from the date of its order. At the end of this period state jurisdiction, if any, is restored unless the foregoing procedure is again revoked.

Where a carrier wishes to discontinue or change, in whole or in part, the operation or service of a wholly intrastate train or ferry and is prevented from doing so by a state constitutional or statutory provision or by an order of a state regulatory authority or by the failure of a state regulatory authority to act upon

its petition within 120 days, a petition for authority to effect the discontinuance or change may be filed with the Interstate Commerce Commission. The Commission may grant such authority only after a full hearing and upon a finding that the discontinuance or change is consistent with future public convenience and necessity and is required in order to avoid an unjust and undue burden upon interstate commerce. The Commission is required to give the governor of the state where the train or ferry concerned is operated 30-days' notice of the hearing and to hold the latter within that state. The Commission is authorized to avail itself of the services, records, and facilities of state authorities in connection with these proceedings.

A proposal to give the Commission authority over the abandonment of railroad stations, depots, and other facilities was not included in the bill as finally passed.

The occasion for the foregoing amendment was concern with regard to the railroad passenger service deficit and the belief that the action of state authorities in refusing or delaying permission to drop unprofitable passenger trains, was responsible for a substantial portion of that deficit. A minority of the House Committee on Interstate and Foreign Commerce questioned both the propriety of federal intervention in this matter and the importance of the relief which might be expected on the basis of the amendment in question. They called attention to data collected by a committee of the National Association of Railroad and Utilities Commissioners showing that over the period 1951-56 state commissions had approved 1274 passenger train discontinuances and had denied 197 and that over the same period they had approved 2466 railroad station agency dis-

continuances and had denied 372.¹⁹ Nevertheless, it was admitted that the policy of some states has been unduly restrictive with respect to this matter and railroad representatives attach considerable importance to this section of the new law. It has already been invoked and is the first section of the new law to be tested in the courts. The Board of Public Utility Commissioners of New Jersey secured an injunction against an order of the Interstate Commerce Commission permitting discontinuance of the Hudson River ferry services of the New York Central, Erie, and New York, Susquehanna and Western railroads pending a determination of the constitutionality of the provision of the new law authorizing the Commission's action.²⁰ A three-judge federal Court in Newark, New Jersey permitted the Erie and Susquehanna to discontinue their ferry operation after December 12, 1958 but ruled that the New York Central must continue its ferry operation pending the outcome of an appeal by the Board of Public Utility Commissioners of New Jersey to the United States Supreme Court. On March 2, 1959 the Supreme Court affirmed the decision of the lower court, thereby permitting the New York Central to drop the service without again going before the I. C. C.²¹

What conclusions may be reached concerning the over-all significance of the Transportation Act of 1958 on the basis of the foregoing review of its individual

provisions? Apart from the loan guaranty and Section 15A provisions, the significance of which is uncertain, it is the writer's view that the changes made by the new law will be of substantial benefit both from a public point of view and from the standpoint of the railroads and regulated motor carriers. Moreover, this is but one of no less than thirty-two bills relating to transportation which were passed by the 85th Congress, including such important measures as the repeal of the federal excise tax upon the transportation of property and the creation of a new Federal Aviation Agency. These measures reflect an unusual Congressional concern with the problems of the transportation industries, especially the railroads, and their total impact promises on the whole, to be important and beneficial. It should be added that the railroads also benefited very materially from the failure of Congress to enact a bill calling for increases in employee benefits under the Railroad Retirement and Unemployment Insurance Acts, the estimated additional cost of which to the carriers would have been \$185 million annually. However, a similar bill has been introduced in the 86th Congress and the chances of again forestalling passage are problematical.

On the other hand, the transportation legislation of the 85th Congress, while substantially strengthening regulation and the economic position of the rail and motor carrier industries, suffers from the fact that it represents a piecemeal approach and that it deals inadequately or not at all with some fundamental problems of the transportation industries. Perhaps in recognition of these weaknesses, and at the suggestion of the Senate Committee on Interstate Commerce, there was passed Senate Resolution 303 which calls for the creation of a committee of qualified experts to investigate and make

¹⁹ *Transportation Act of 1958*, Report of the Committee on Interstate and Foreign Commerce on H. R. 12832, House Report No. 1922, 85th Congress, 2nd Session (Washington, D. C.: Government Printing Office, 1958), pp. 20-24.

²⁰ "Transportation Act Under Attack," *Railway Age*, September 8, 1958, p. 9. See also *Railway Age*, September 22, 1958, p. 10. The first case involving the use of this section in connection with passenger trains is the application of the Great Northern Railroad to drop certain branch-line trains operating between Williston, North Dakota, and points in North Dakota and Montana. See *Railway Age*, September 29, 1958, p. 52.

²¹ *Wall Street Journal*, December 5, 1958, p. 5, March 3, 1959, p. 3.

recommendations regarding certain long-range policy matters in the field of transportation. The committee is directed to investigate the following matters: (1) the kind and amount of transportation regulation needed under present-day conditions; (2) subsidy policies and the desirability of a system of user charges to be assessed against users of publicly provided transportation facilities; (3) the ownership of one form of transportation by another; (4) federal policy regarding large-scale mergers and consolidations in the railway industry; (5) policy concerning the kind and amount of railway passenger service necessary to serve the public and provide for the national defense; (6) problems arising from Interstate Commerce Commission actions with regard to the long-and short-haul clause; (7) "additional matters of federal regulation (and exemption therefrom) and federal promotional policies in regard to the various forms of transportation."²²

Whether the investigations contemplated will prove fruitful depends, of course, upon the caliber of the investigating committee and staff and upon the time and financial support allocated to the project. However, at best it will be difficult for the committee to break much fresh ground in view of the extensive investigations of the matters mentioned which have been made by academic economists and government agencies in recent years. In any event, it is essential that there be unified reconsideration by Congress of the whole area of transportation regulation and promotional policy, looking toward the enactment of a comprehensive measure comparable to the Transportation Act of 1920 but of even wider scope.

²² Authority under Senate Resolution 303 expired at the close of the 85th Congress. It was replaced in the 86th Congress by Senate Resolution 29, which contains almost identical language and calls for a report by January 31, 1966.

It may be noted in passing that one important matter not mentioned among the subjects of investigation under Senate Resolution 303 is the taxation of transportation agencies and particularly the matter of inequalities of tax burdens as among the various agencies. There has been no comprehensive investigation along this line since the Carrier Taxation study of the Board of Investigation and Research, published in 1944. A conspicuous illustration of tax inequality as among transportation agencies is to be found in the imposition of payroll taxes upon railroads under the Railroad Retirement and Unemployment Insurance Acts which are heavier than those paid by other transportation agencies under the Social Security Act—an inequality which will become greater if the legislation referred to above, which failed to pass in the last Congress, should be enacted. Likewise there are strong arguments for repealing the federal excise tax on passenger transportation, even though the financial benefit to the carriers probably would be small as compared with that resulting from the repeal of the excise tax on freight transportation. Certain proposals for tax relief advanced by the railroads during the last Congress require further study in connection with the consideration of over-all tax policy. These include a proposal for the establishment of tax-deferred construction reserve funds similar to those provided under the Merchant Marine Act of 1936 and certain proposals which would have the effect of increasing the railroads' permissible depreciation allowances.

Finally, it should be emphasized that an efficient and financially healthy transportation system cannot be achieved by regulatory changes alone but will require increased effort by carrier managements

to effect economies in organization and operation—a task which also requires the cooperation of transportation labor, increased attention to the improvement of service and the selling of service, and revision of rate structures in accordance with the implications of pervasive inter-agency competition. A discussion of specific steps which need to be taken in order to achieve the foregoing objectives is beyond the scope of the present paper.

It need only be said here that while the Transportation Act of 1958 and the other transportation legislation of the 85th Congress promise to contribute significantly toward achieving the goals of more effective regulation and an economically stronger transportation system, much larger tasks await carrier managements, transportation labor organizations, regulatory agencies, and Congress in the immediate future.

“Land Tenure Industrialization and Social Stability: Experience and Prospects in Asia.”

This is the title of a conference to be held at Marquette University, Milwaukee, Wisconsin, September 25-27, 1959. The purpose of the conference is to survey the effects of recent land tenure changes or the absence of such changes in Asian countries on the distribution of income and wealth and hence directly or indirectly on the methods and organization of agricultural production, the capacity of capital formation, and the degree of popular acceptance of the existing social and political orders. Lectures by experts and panel discussions will characterize the conference. Countries to be covered include China, Korea, Japan, India, Indonesia, Viet Nam and the Philippines.

Information on advance registration and related information is available from Arrangements Committee, Institute for Asian Studies, Marquette University, Milwaukee 3, Wisconsin.

Reports and Comments

A Proposed International Hydroelectric Development Project in Central America: Lake Guija

THE world over, large multi-purpose international water development projects are being proposed to help economic development and to secure maximum benefits from water resources as the world approaches its water frontier. In most cases, political rivalry between states having common interest in water resources and, in some cases, domestic political considerations make a decision to cooperate difficult to reach. Small as it is, the Lake Güija scheme shows some of these same characteristics and, on a much reduced scale, presents another instance of the difficulties inherent in international hydro-economic development.

As laid down in the 1938 frontier agreement, the boundary-line divides Lake Güija so as to place about seven-tenths of its area in Salvadoran territory and about three-tenths under Guatemalan control.¹ The area of the lake is 42 square kilometers (16.2 square miles); the altitude of the lake's normal average level fluctuates between about 426 and 430 meters (1397-1410 feet) above mean sea-level. The drainage basin of the lake is 2560 square kilometers; of this, 2050 square kilometers are in Guatemala. The boundary rivers, Ostúa and Cusmapa, are the lake's principal feeders. The waters egress through the eight-kilometers long Desagüe, a tribu-

tary of the important Río Lempa. Both these rivers are entirely in Salvadoran territory and El Salvador thus controls the natural outlet of the lake. There is a natural "head" of about 45 meters (148 feet) from the lake's normal level to the Desagüe.²

Initial interest in common management of the lake came from the Guatemalan Government in 1939. Guatemala was then concerned over the inadequacy of the Desagüe to properly drain the lake during the rainy season and over the regular annual flooding of Guatemalan and Salvadoran shore areas. Some 120 million cubic meters of water accumulate in the lake as a result of copious winter rains, raising the lake's level by some three meters at least. Despite a technical survey that same year—it was found feasible suitably to enlarge the draining capacity of the Desagüe—nothing further materialized.

Renewed interest in the lake resulted from Salvadoran desire to improve hydroelectric production in the Río Lempa basin in conjunction with the World-Bank-financed "Cinco de Noviembre" scheme at El Guayabo downstream. To gain maximum results at the Guayabo installation, Salvadorans wished to regulate the supplies flowing out of Lake Güija. Later they became eager to supplement the "Cinco de Noviembre" plant with two plants on the Desagüe, which could—according to the Lempa River Commission (Comisión Ejecutiva Hidroeléctrica del Río Lempa, a Salvadoran government agency)—produce another 45,000 kilowatts without decreasing the "head" downstream, where the "Cinco de Noviembre" plant ultimately may yield 75,000 kilowatts.³ This later elabora-

¹ Text of the boundary agreement, signed April 9, 1938, in *Informe de la Comisión Mixta de Límites relativo al trazo de la frontera entre El Salvador y Guatemala y rendido a los respectivos Gobiernos por los delegados . . . el 31 de Octubre 1940* (Guatemala, May 1942), pp. 71-79; and in, El Salvador, Ministerio de Relaciones Exteriores, *Tratados, Convenciones y Acuerdos internacionales vigentes en El Salvador*, Volume 2, p. 945 (San Salvador, 1938). From the north the boundary-line reaches the lake by following Río Ostúa downstream to its mouth by the river's median line; then follows southward the western shore of the peninsula which juts from north to south into the lake; then traverses the lake in a straight line to the northernmost point of the peninsula called Tipa Afuera; then follows the eastern shore of that peninsula to the mouth of the Cusmapa River, which it then follows upstream by its median line (Art. 1).

² Comisión Ejecutiva Hidroeléctrica del Río Lempa, *El Lago de Güija: Historia y consideraciones técnicas del aprovechamiento internacional de sus aguas* (San Salvador, 1958), p. 7.

³ Comisión Ejecutiva Hidroeléctrica del Río Lempa, *Obras y Proyectos* (San Salvador, no date [1957?]), *passim*; International Bank for Reconstruction and Development, *The World Bank in Latin America* (Washington, October 1958), pp. 30-31; *The New York Times*, November 4, December 10, 1956, and March 10, April 21, June 2, August 25, 1957. A further World Bank loan to El Salvador was announced in February 1959. It is to make possible expansion of generating capacity at El Guayabo to 60,000 kilowatts from the present 45,000.

tion will have no negative effects downstream but requires a slight elevation of the level of the lake⁴ and the consequent flooding of some riparians properties in both El Salvador and Guatemala; restriction of water utilization in the Guatemalan and Salvadoran parts of the Güija basin; and certain joint measures designed to prevent formation of swamps along the new shore-line of the lake. Thus, unlike the earlier flood-control scheme, the hydroelectric utilization of the lake definitely requires international cooperation.

In August 1953 the Lempa River Commission began construction of regulatory works on the Desagüe as part of the overall Río Lempa project. These works, completed in 1957, utilize the lake as a storage basin for the winter surplus water, which can, by being released during the drier months, maintain a constant supply for the Guayabo plant, prevent floods on the Lempa, and reduce the danger of flooding areas riparian to Lake Güija.

The Guatemalan Government, then headed by Jacobo Arbenz, had in June 1952 indicated that it had no objection to the regulatory works which El Salvador was planning to erect. It was not until October 1955 that, at a meeting of Guatemala's President Castillo Armas (Arbenz had been ousted in June 1954) and El Salvador's President Osorio, the Guatemalan Government was officially apprised of the proposed hydroelectric phase of the Güija project. The two states agreed to the formation of a mixed technical commission to undertake a study of the feasibility of the hydroelectric project and of the effects it would have on the riparian areas. By executive agreement of the two governments such a commission was appointed in April 1956, consisting of six members—two technicians and one diplomat from each state. In October 1956 President Castillo Armas and the New Salvadoran President, Lieutenant-Colonel José María Lemus, approved the commission's report and instructed the commission to proceed with the drafting of a treaty along the lines of certain points of reference which it had been given.

⁴ The present height of the dam is 432 meters above sea-level. It can store 550 million cubic meters of water. The dam is built so that it may be further heightened to 436 meters above sea-level, at which time it may store some 770 million cubic meters of water.

The resulting text was signed April 15, 1957.⁵ Its eight articles and two transitory clauses seek to define the legal framework within which international cooperation on a hydroelectric project would take place. According to the treaty, development of the lake may be undertaken by either side in its own territory provided that the fluctuations of water level resulting from new installations not exceed 436 meters or fall below 414 meters above sea level. The state using Lake Güija waters for hydroelectric production is to provide the other state with 5000 kilowatts of electric power at the price at which power is sold in the producing state's boundary region. After ten years the amount of energy required to be delivered is to be that requested by the receiving state, though not in excess of 5000 kilowatts. The two governments will cooperate to prevent swamp formation and other health hazards but these operations are to be paid for by the water-utilizing government.

Insofar as private riparian rights are affected or prejudiced (e.g., flooding) in the territory of the other state by works erected or measures taken in the water-utilizing state, the latter is to pay compensation to the former. The territorial state (i.e., the state in the territory of which the damages or prejudices have effect) is to expropriate the riparian lands affected in accordance with its own legislation, thereafter devoting the expropriated lands exclusively to "works of protective afforestation" and to other conservationist purposes enhancing the hydrological condition of the lake. Thus nothing may thereafter be done in the expropriated riparian areas which would tend to prejudice the utilization of the lake's waters. The actual amount of compensation is to be agreed upon by the two governments; it is to cover at least the amount paid out in the expropriation process by the territorial government as well as future claims. Disagreement on the amount or manner of payment is to be submitted to an arbitration tribunal consisting of one representative of the riparian owners in the territorial state, one representative of the state or of the agency carrying out the works, and "a third, who shall be a Central American by nationality and origin, but neither Guatemalan nor Salvadoran."

⁵ *Tratado entre las Repúblicas de Guatemala y de El Salvador para el aprovechamiento de las aguas de Lago de Güija* (mimeographed text, courtesy of the Embassy of Guatemala, Washington, D. C.); also in *op. cit. supra*, note 2.

Each of the two states agreed to undertake in its territory measures designed to improve the flow of the headwaters and to prevent by all possible means any new utilization from significantly diminishing the waters reaching the lake.⁶ The water-utilizing state, in addition, agreed to affix buoys to frontier markers submerged by the rising water level so as not to decrease the visibility of the boundary-line.⁷

A mixed commission, of no more than three representatives from each state, is charged with the execution of the agreement. It will function permanently, the two chiefs of delegations remaining in contact between sessions. The commissioners are given the right to travel freely in either country and to gather necessary information.

For four years from the date on which utilization of the water begins, maximum level of the lake is not to exceed 432 meters. Compensation for the effects of flooding resulting from a level between 432 and the maximum of 436 meters is to be paid out only at such time as the further flooding takes place.

The mutuality phrasing of the agreement was, of course, a diplomatic device. It was clear that El Salvador is to be, under the treaty, the water-utilizing state. This was specifically recognized in the second transitional clause. It stated that, inasmuch as El Salvador had begun works enabling it to make hydroelectric use of the lake's waters, El Salvador would make available to Guatemala the required electric power at the same price as that charged for electric power at Matapán no later than March 15, 1960.

The treaty was ratified by El Salvador two days after its signature but ran into difficulties in the External Relations Committee of the Guatemalan Congress. The committee's chairman, the Executive Director of the Lempa River Commission, and a high Salvadoran official met in Guatemala City in September 1957 and as a result of these discussions three amendments were made to

the signed but only partially ratified treaty.⁸

Two of the three changes represented Salvadoran concessions. The article prohibiting increased utilization was deferred for five years after ratification, thus giving Guatemalan riparians on the lake's tributaries an opportunity to increase water utilization before the legal "freeze" takes effect. In the earlier version the treaty was of indefinite duration but now its life was set at thirty-five years, automatically extendable by ten-year periods unless one-year notice of denunciation is given by either side. El Salvador thus assumed the risk that its investment in the project, which the Lempa River Commission estimates will total several hundred million colóns, may be largely lost after 35 years.

The Guatemalan concession was procedural only, resulting from Guatemalan hesitation about signing the treaty. No fixed date was set for the beginning of Salvadoran power deliveries; instead it was provided that Salvador would begin to make power available to Guatemala "no later than three years from the date of the exchange of the instruments of ratification."

These changes, however, have not yet resulted in Guatemalan ratification. President Castillo Armas had been murdered in June 1957. A bitter political campaign preceded elections in October 1957 but a few days after the elections the incumbent was displaced by a military junta before the newly-elected president could take office. In March 1958, the present elected President, General Miguel Ydígoras Fuentes, took office; he has indicated that he favors further study of the Lake Güija project, thus implying that his country did not necessarily feel itself bound by the treaty and the additional protocol it had signed in 1957 but not ratified.

During the electoral campaign which ended in October 1957 the Lake Güija project became a partisan issue in Guatemala. Both the late Castillo Armas and his immediate successor, Gonzáles, were bitterly attacked, largely by leftist sympathizers of the Arbenz régime, for their favorable stand on the matter. Criticism of the project centered on these points: that valuable Guatemalan terri-

⁶ Under the frontier agreement of 1938 (Art. 2), each of the two states has the right to make use of up to half the flow of boundary streams for agricultural or industrial purposes.

⁷ This appears to refer primarily to markers at the respective tips of the two peninsulas mentioned in note 1 *supra*.

⁸ *Protocol Adicional al Tratado entre las Repúblicas de Guatemala y de El Salvador para el Aprovechamiento de las Aguas del Lago de Güija* ("thermofaxed" copy courtesy of Embassy of Guatemala, Washington, D. C.); also in *op. cit. supra* note 2. The protocol was signed September 20, 1957, in Guatemala City; neither side has yet ratified it.

tory would be flooded; that Guatemala would be deprived of water resources; that the amount of electricity specified to be furnished by El Salvador was too small, and the price for it too high. An analysis of these arguments generally favors the treaty as signed in 1957.

The flooding of riparian areas will affect both countries approximately to the same degree if the water level is raised to 436 meters. At the first stage—involving raising the waters from the normal maximum of 430 meters to 432 meters—1.9 square kilometer of Guatemalan, and 2.6 square kilometers of Salvadoran territory will be submerged. At the second stage—up from 432 meters to 436 meters—6.1 square kilometers of Guatemalan and 5.4 square kilometers of Salvadoran soil will be flooded. The totals for each country thus are eight square kilometers. These figures, of Salvadoran origin, may be somewhat biased. The average level of the lake, it will be recalled, varies from about 426 meters to 430 meters. While no definite information is available to the writer, it appears from maps (including a 1:5000 map) examined that the slope of some of the riparian areas is such that, in the level bracket between, say, 428 and 430 meters, more Guatemalan territory is affected than Salvadoran. However, this band of Guatemalan shore is in any event the object of frequent yearly flooding and its economic value therefore probably no more than marginal; *a fortiori*, the same would be true for areas lying below 428 meters elevation. Furthermore, none of the immediate riparian areas are known to have any inherent economic value; no inhabited or built-up areas are affected.

That the treaty would limit Guatemalan (and Salvadoran) utilization of headwaters of the lake is, of course, true. It is debatable, however, whether, even with this situation, Guatemala need hesitate to enter into the agreement. The use made of these waters in the past appears to have been quite modest. With the newer version of the text, a five-year period would follow ratification during which new irrigation appropriations can be made by Guatemalans and Hondurans. After such a five-year period it is unlikely that much additional demand for irrigation water would arise.

An omission in the treaty regarding priority for municipal and sanitary uses may be unfortunate. According to the sparse informa-

tion available to the writer, it appears that the Guatemalan areas immediately (i.e., say, in a ten-mile radius) northwest and west of the lake generally have less water resources than the Salvadoran areas to the east. If the Güija development and its electricity should bring industry and, with it, additional population to the Guatemalan areas of the Güija area, water for municipal and sanitary purposes may be inadequate. Municipal and sanitary water utilization has, in many international water utilization agreements, received priority over other uses.

The amount of electricity—5000 kilowatts—which El Salvador would undertake to provide is about one-third of the power which initially will be produced on the Desagüe and about one-ninth of what ultimately may be the yield. According to Salvadoran figures, the obligation to deliver this power will involve Salvadoran investment of \$2.5 million in machinery installation alone not counting the cost of the transmission line bringing the power to the border for delivery. Five thousand kilowatts may be measured against the power requirements of the nearby Salvadoran city of Santa Ana (of some 100,000 population) which demands about 4,200 kilowatts. Jutiapa, the only major Guatemalan center in the Lake Güija area, has under 15,000 inhabitants. The Guatemalan areas in the Lake Güija region are only lightly populated and as yet little developed. According to the treaty, Guatemala would pay for this power at rates current at Matapán. Since Guatemala is not investing money in the Güija project, only supplying unappropriated waters, this appears to be a fair hydro-economic arrangement. The Lempa River Commission being a public authority, the margin of its profit on power it sells may be presumed to be small and the price paid by the people of Matapán—and Guatemala—is likely to be reasonable.

Once agreed upon by ratification the Lake Güija project would insure benefits for both participants. It would secure for both countries electric supplies they can profitably use and in particular may stimulate economic development of the Guatemalan *Departamento* of Jutiapa, riparian to the lake. Furthermore, it might become the first step in a broader economic integration. To benefit the immediate Lake Güija area as well as both countries, Guatemala and El Salvador might

consider cooperation on a spur to the Guatemalan "Atlantic Highway," thus giving southern Guatemala and its neighbor an easier access to the Atlantic. Viewed against a background of recent proposals for closer Central American economic cooperation the

proposed Lake Güija project may also set the pattern for other international hydro-economic schemes in the area.

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Reclamation's Influence on the Rest of Agriculture†

FEDERAL natural resource programs affect agriculture through (a) bringing in new land and (b) creating non-agricultural outputs such as power and navigation that in turn impinge on agriculture. The new land effects appear the more significant for agriculture. Power and navigation draw population to an area but relatively few agricultural products (milk, some truck crops) are primarily demand-oriented in the location of their production. If an area has low income due to inefficient production and lack of fluidity in factor markets, a natural resource program may alter the situation through economic development effects. The Tennessee Valley Authority may be the only federal natural resource development that is very notable in this regard.

The present paper concerns the new land effects of federal programs. The 6.4 million acres on irrigation projects of the United States Bureau of Reclamation affords an example of new land brought in over the past fifty years. An idea of its relative importance is given in Table I. Flood protection from Corps of Engineers structures has new land implications in that it permits the cropping of protected land (or more intensive cropping if the land was already in cultivation). Even if the new land equivalent is not, as claimed, greater than acreage of Bureau of Reclamation projects the Corps must still be credited with a major land development effort. The United States Department of Agriculture watershed program by contrast is not so major. The figures are smaller and in themselves overstate the amount of land development inasmuch as a watershed project may serve only to increase somewhat productivity of land already in use. The United States Department of Agriculture Agricultural Conservation Program,

TABLE I—ESTIMATES PERTAINING TO FEDERAL LAND DEVELOPMENT PROGRAMS

	New Land Equivalent (Millions of acres)	Investment by Government (Millions of dollars)	Average Annual Benefits (Millions of dollars)
Bureau of Reclamation....	6.4 ¹	\$1,968 ¹	...
Corps of Engineers.	8.0 ²	1,195 ²	26.0-52.0 ³
USDA Watershed Program			
Old.....	...	184 ⁷	...
New.....	.3 ³	28 ³	2.7 ³
Land Cleared under Agricultural Conservation Program.....	3.5 ⁴

¹ United States Bureau of Reclamation, *Reclamation Era*, November 1957, p. 101.

² Edward F. Renshaw, *Toward Responsible Government* (Chicago, Illinois: Idya Press, 1957), p. 122.

³ M. L. Weinberger, "Emerging Research Needs for Small Watershed Development," paper given at Conference for Co-operators in the Tennessee Valley Authority Agricultural Economics Research Activities, March 26, 1958, Knoxville, Tennessee, p. 5. Land equivalent given above is flood plain land. Total area of these watersheds is 2.8 million acres.

⁴ H. H. Wooten and J. R. Anderson, *Major Uses of Land in the United States*, United States Department of Agriculture Information Bulletin No. 168, Washington, D. C., 1957, p. 89.

⁵ Commission on the Organization of the Executive Branch of Government, *Task Force on Water Resources and Power* (Washington, D. C.: Government Printing Office) Vol. 1, p. 47.

⁶ Renshaw, *op. cit.*, p. 119.

⁷ United States Department of Agriculture, *Agricultural Statistics* (Washington, D. C.: Government Printing Office, 1954) p. 547.

⁸ Using a land value approach, Renshaw (*op. cit.*, p. 122) estimated a capitalized benefit of \$520 million. Range given in table assumes a capitalization rate between 5 percent and 10 percent.

which has entailed important private expenditures as well as federal, is certainly responsible for bringing in much new land equivalent since 1936. In addition to the 3.5 million acres cleared in connection with this

† The material on which this article is based was presented at a meeting of the Association of Southern Agricultural Workers, Memphis, Tennessee, February 1959.

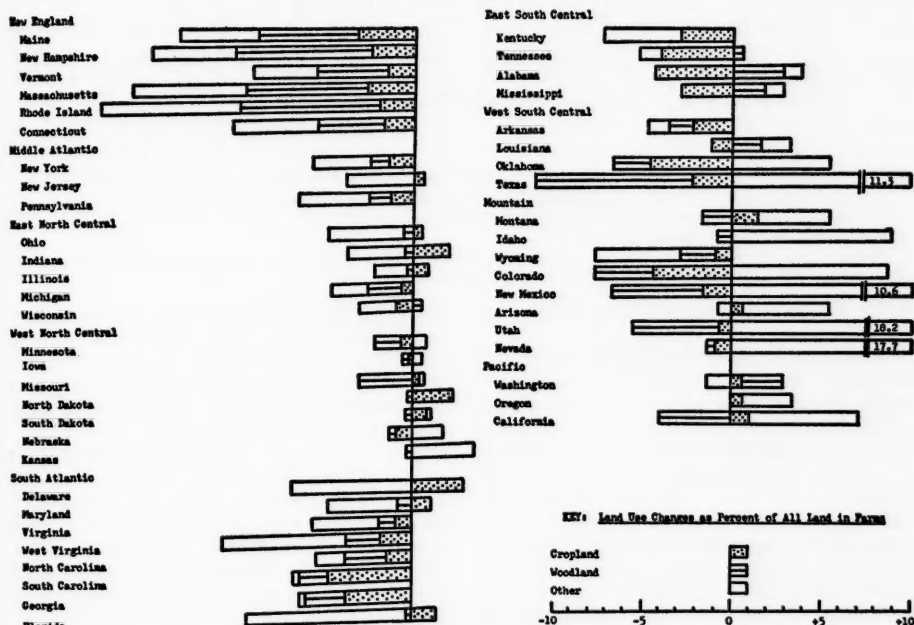
program, subsidies have been involved in draining and levelling for irrigation large additional acreages.

The preceding figures on land brought in are not negligible when compared with the roughly 400 million total acres used for crops in the United States.¹

Land use adjustment is both dynamic and interrelated among the different regions. These characteristics are relevant in understanding the impact of land development on agriculture. Figure 1 indicates that relative

stability at the national level conceals a great deal of adjustment in land use that is offsetting among the regions. Illustrative are the declines in land in farms in New England and the South Atlantic to the accompaniment of expansions in the West South Central, Mountain and Pacific regions. The greater stability at the national level than among the regions is not an accident. Rather, it is a manifestation of the interrelatedness of the regions. Some of the changes are primarily causes and others are primarily responses

FIGURE 1—LAND USE CHANGES: 1950-1954.



Source: United States Department of Commerce, *United States Census of Agriculture: 1954, General Report, Volume II* (Washington, D. C.: Government Printing Office, 1956), pp. 30-33.

necessitated by these causes. Reclamation is a prime example of a causal shift.

Regional interrelatedness is due to the fact that United States agricultural production shares a common demand and the interrelatedness is made more pronounced by the inelasticity of demand. An increase in agri-

cultural production on a new reclamation project almost inevitably means that there is going to be less agricultural production somewhere else.

An acreage change matrix is helpful in throwing light on how regional displacements work themselves out. As shown in Figure 2, the entries total column-wise to acreage change for an area and they total row-wise to aggregate acreage change for a crop. Perhaps a chief advantage of the setup is in

¹ According to figures derived from the 1954 Census of Agriculture, cropland used chiefly for crops was 399 million acres. See H. H. Wooten and J. R. Anderson, *Major Uses of Land in the United States*. United States Department of Agriculture Information Bulletin No. 168, Washington, D. C., 1957, p. 3.

FIGURE 2—ACREAGE CHANGE MATRIX: 1949-1954.
(MILLIONS OF ACRES)

	Net Change	N ^o East	Mid-East	South	Mid-West	Lake	Dakotas	Mid-Plains	S.Plains	Cal-Ariz	N ^o West
Wheat	-19.8	←-.4	←-.2	←-.1	←-2.0	←-.9	←-4.0	←-6.1	←-4.4	←-.2	←-1.5
Corn	-5.2	→.2	←-.4	←-1.9	←-.7	←-.1	→.2/	←-1.3	←-1.3	→.1	→.1
Hay	4.3	←-.2	←-.2	←-.2	→1.2	→.4	→1.0	→1.2	→.6	→.1	→.5
Cotton	-7.7			←-4.2					←-3.4	→.2/	
Other	16.9	←-.3	→.2/	→2.0	→2.2	→.2/	→4.0	→3.2	→3.6	→.5	→1.6
Total	-11.5	←-.7	→-.8	→-4.4	→.6	→-.6	→1.1	→-3.0	→-4.9	→.6	→.6

¹ Arrows explained in text. For the original acreage figures "Net Change" is the row sum and "Total" is column sum. These sums do not hold exactly in the matrix as shown, due to rounding.

² Magnitude of change less than .05.

Source: United States Department of Commerce, *United States Census of Agriculture: 1954, General Report, Volume II* (Washington, D. C.: Government Printing Office, 1956), pp. 34, 606-811.

forcing a consistent picture taking account of ideas about the totals.

Consider the forces affecting cell entries for the South. The declines for the country as a whole of wheat, corn and cotton are assumed in the matrix to be dominated by external forces rather than to result from shifts within the matrix. These forces were related to total demand as well as to aggregate acreage restriction under government programs. This is indicated by a single arrow going out from each one of these three crop totals. The arrow coming into the cell for each of these three crops for the South indicates direct impingement of the forces in this region. Then the arrow going out of each of the three latter cells indicates the chain of causality continued on, playing a part in further effects on southern agriculture.

The remaining crop cells for the South (hay and "other") have arrows that turn out mainly to be an indirect result of the national changes already mentioned in wheat, corn and cotton. That is, tracing through other parts of the matrix indicates that the national declines in wheat, corn and cotton made for substitutions in favor of hay and "other." Because of national demand the extent of these adjustments in the South and in other regions was not independent, as indi-

cated by the connected arrows along the hay and "other" rows. And the arrow coming out of the hay and the arrow going into the "other" cell for the South column show that these crops were causally related to the total change in southern agriculture.

Both the direct and indirect effects that have been noted made for a decline in crop acreage in the South. This is indicated by the single arrow going into the total acreage change for the South of -4.4 million acres. According to this interpretation, the latter is one of the main end resultants of the forces playing on the table.²

Here are hypotheses about the major roles of the regions in agricultural adjustment that can be helpful in tracing the effects of reclamation:

The agriculture of the *Northeast* is declining because of a secular disadvantage in agricultural production. The decline has been going on for several decades. It is at least partly related to a climate and topography that has not been favored by technological progress as much as other regions. A continuing cost-of-production disadvantage,

² The acreage change matrix and the concept of chains of reaction that can be contained in it are introduced and developed in a forthcoming monograph by G. S. Tolley and L. M. Hartman, *Crop Acreage Change, 1909-1957*.

rather than specific displacements from other regions, may largely determine the rate of decline.

The *Midwest* is not marginal. It has a strong comparative advantage in agricultural production, as evidenced by its high land values and relative stability of total farmland.

The *West* has at least three different major influences: (a) Federal reclamation, whose effects we are interested in here, may be considered exogenous. (b) Private irrigation facilities have been built to take advantage of a limited number of profitable investment opportunities. In view of the large costs it is not likely to be undertaken unless definitely profitable and the high productivity once facilities are built make it largely irreversible. Thus private irrigation projects do not seem marginal. (c) There were wheat expansions in the western plains connected with World War II that would be marginal in the

absence of government control programs. These farms would probably not produce for a free market equilibrium price but can do so with their acreage allotments under the price support program. They are frozen in with their historical base acreage so that other regions must share more fully in adjustments surrounding wheat and its substitutes.

The *South* is left as one of the main residual equilibrators in adjusting total agricultural supply. This is supported by the observation that land values in this region are generally low and near the cost of clearing. Land has gone out of farms on net but at the same time there has been considerable private land development. There are large rural areas not farmed, much of it woodland, whose soil does not appear very different from that now in farms.

The following hypotheses underlie Table II, which aims to give a systematic picture of

TABLE II—INTRA-AGRICULTURAL EFFECTS OF PRODUCTION OF FEDERAL RECLAMATION PROJECTS
(Gross crop value in millions of dollars)

AREA AND CROP	Production on Reclamation Projects ¹	Estimated Effects ²				Decrease in United States Production Off Projects
		Increase in United States Consumption	Additions to Storage	Increase in Exports	Decrease in Imports	
West (17 states)³						
Forage.....	180	0	0	0	0	60
Cotton.....	159	0	10	20	0	-120
Cereals.....	104	0	5	10	0	0
Sugar Beets.....	88	0	0	0	88	0
Other.....	421	0	0	0	0	295
South (14 states)⁴						
Forage.....	0	x	x	x	x	60
Cotton.....	0	x	x	x	x	249
Cereals.....	0	x	x	x	x	89
Sugar Beets.....	0	x	x	x	x	0
Other.....	0	x	x	x	x	84
North (17 states)⁵						
Forage.....	0	x	x	x	x	60
Cotton.....	0	x	x	x	x	0
Cereals.....	0	x	x	x	x	0
Sugar Beets.....	0	x	x	x	x	0
Other.....	0	x	x	x	x	42
Totals.....	952	0	15	30	88	819

¹ Source: Department of Interior, 1957 *Annual Report* (Washington, D.C.: Government Printing Office, 1958), pp. 36-37.

² Estimated effects explained in text.

³ North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California.

⁴ Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana.

⁵ Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri.

the effects of production that takes place on federal reclamation projects.

The yearly production of 952 million dollars worth of crops from the projects must have negligible effect on United States consumption in view of the inelastic demand for farm products. Perhaps in recent years 15 million dollars additional products have gone into storage as a result of the production. Exports may have been 30 million dollars greater. These figures are derived from applying a five-year-average percentage for the United States (for storage and exports, respectively, of various crops) to the amounts produced on reclamation projects. Imports appear to have been decreased roughly 88 million dollars as a result of sugar beet production on the federally reclaimed land. It is assumed that an amount of sugar equivalent to that supplied from reclamation projects would be added to imports.

This leaves the bulk of the 952 million dollars worth of production on reclamation projects accounted for by declines in agricultural production in the United States off the projects. Cotton was displaced in the South, directly by cotton production on the projects and indirectly by fruit and vegetable production. The fruit and vegetable production that would otherwise take place in the West would force less cotton-growing in the West and would thus further increase the amount that could then take place in the South. If it were not for government allot-

ments and price support, the cereals production on reclamation projects would have tended to displace marginal wheat farms in the western plains. But because of the operation of the government programs the South may be the marginal region of the country in terms of cereals production. The one assumption we might be able to make favorable to minimizing impact in any one region is that the declines in forage production may have been distributed rather evenly over the country.

The analysis suggests that main effects of western reclamation have been in the South, where perhaps 480 million dollars worth of production has been displaced. The seriousness with which this exact number is taken is not so important as the conclusion that effects have assuredly been significant. Since 480 million dollars is about five percent of gross farm income in the South, it may be that one farm worker for every twenty remaining in southern agriculture has been displaced by western reclamation.³

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³For the states we have included in the South in this analysis gross farm income in 1957 was just under \$10 billion. See United States Department of Agriculture, Agricultural Marketing Service, *The Farm Income Situation*, September 1958, pp. 25-29.

The Economies of Scale in the Motor Carrier Industry: A Reply

THE MAY 1958 issue of this *journal* contained an article by Edward W. Smykay ("An Appraisal of the Economics of Scale in the Motor Carrier Industry," pp. 143-148) in which the author related the title of his article to public policy for the motor carrier industry. In the course of his discussion he criticized the analytical technique which I had used in a study of highway transport in New England.

I should like to comment on Smykay's paper because not only do I question the soundness of Symkay's criticism but also I feel that he has, inadvertently perhaps, con-

veyed a faulty impression of the content of my study—which is no longer in print.¹

One thing is quite clear in Smykay's article; namely, his hostility to the point of view expressed by Walter Adams and James B. Hendry² that the motor carrier industry fits the classical model of perfect competition and therefore can safely be freed of regulation.

¹Robert A. Nelson, "The Economic Structure of the Highway Carrier Industry in New England," *Motor Freight Transport for New England* (Boston: New England Governors' Committee on Public Transportation, 1956).

²Walter Adams and James B. Hendry, *Trucking Mergers, Consolidation and Small Business: An Analysis of Interstate Commerce Commission Policy* (Washington, D. C.: United States Government Printing Office, 1957).

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* Edw
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* Ibid.

Evidently, because the Adams-Hendry report cited the New England study's analysis of scale in the motor carrier industry, the Adams-Hendry philosophy and policy conclusions are imputed to it. That this is a serious misinterpretation of the New England report will be apparent to anyone who may read it in its entirety. It may explain Smykay's incorrect "implied assumptions of Nelson" and the unfortunate misquotes in his article.

The title of Smykay's article (in which "economies of scale" is presumably a misprint for "economies of scale") would suggest that his opposition to the Adams-Hendry view stems from a belief that the optimum size of firm in the trucking industry may be too large to meet the requirements for perfect competition. This impression is reinforced when Smykay criticizes my study most strongly in its conclusion that there was little or no evidence of the advantages of size in an important segment of the motor carrier industry in New England. Since Smykay evidences a willingness to accept some measure of de-regulation if it can be shown that there are no economies of scale in trucking, he apparently felt pressed to repudiate the findings of the New England study.³ Unfortunately, Smykay could muster little evidence to support a case against cost linearity. In the light of the announced intention of the title of the article, it is surprising that he admits that statistical studies which he has prepared (but does not present) are open to criticism since "artificial conventions had to be employed."⁴

My concern, however, is not so much with Smykay's views as with his use of my report as a straw man to extricate himself from his self-contrived cul de sac. Smykay's review of my study conveys the impression that I entertain a Pollyanna vision of the trucking industry, free of regulation, smoothly donning the classic garb of perfect competition and functioning flawlessly forever thereafter. Evidence to the contrary he seems to regard simply as unprofessional inconsistency on my part. Also I object to his attributing the policy recommendations contained in my report solely to the finding that there is little evidence that economies of scale exist in trucking in New England.

The need for clarification seems to follow along three lines. One, a brief recapitulation of the recommendations of the New England report; two, a correction of the misquotations and unjustified imputations which are sprinkled through Smykay's treatment of my report; and three, a reply to his criticism of my analytical techniques.

The New England Report's Recommendations

In general, the New England report's recommendations were made in an attempt to unravel the deep insinuation of the Interstate Commerce Commission into the lives and fortunes of motor carrier firms, based on findings that Interstate Commerce Commission regulation has tended to engender a rigid, and economically inefficient organization of the industry, characterized by virulently high-cost service competition. They did not contemplate that highway transportation could safely revert to a complete state of de-regulation. Certain restraints on the fratricidal tendencies of firms in the industry would have to be maintained, perhaps indefinitely. Thus the recommendations are couched in such terms as the following:

"The test of common carrier certification should be revised to accord to market forces more influence in determining the public's need for highway transport. To this end the Interstate Commerce Act should be amended to direct the Commission to grant certificates to 'fit, willing, and able' carriers unless it can be shown that the public convenience and necessity will not be thereby served

"The Interstate Commerce Act should be revised to direct the Interstate Commerce Commission to establish maximum or minimum reasonable rates for each carrier rather than for groups of carriers."⁵

If a single underlying theme of the report were to be spotlighted it would be that the burden of checking the latent competitive excesses of the industry should be shifted at least in part from the state to the industry itself. Relief from the enervating hand of the Commission is the objective, not a reign of competitive terror.

Corrections

1. Smykay's article states "the public policy conclusions stated by Nelson are that regulation should be geared to the ad-

³ Edward W. Smykay, "An Appraisal of the Economics of Scale in the Motor Carrier Industry," *Land Economics*, May 1958, p. 144.

⁴ *Ibid.*, p. 146.

⁵ *Op. cit.*, p. 24.

mission of 'any applicant who is fit, willing and able'.⁶ He omits the important qualification in the report "unless it can be shown that the public convenience and necessity will not thereby be served."

2. The New England report's recommendations that the Commission be directed to establish maximum or minimum *reasonable* rates for each carrier is misquoted by Smykay's article as "'maximum and minimum rates for each carrier'."⁷

3. The report recommended that "public policy at the state and municipal level should foster conditions of economic efficiency in the highway transport industry. Measures with regard to traffic control, highway construction, and terminal construction and operation may be taken to further the efficiency of highway carrier operation." Smykay rephrased this as "and states and municipalities should foster, among other things, 'terminal construction and operations'."⁸

4. "The implied assumption of Nelson that all carriers domiciled in New England serve a single market area is obviously at variance with the facts. The market area served by a common carrier of general commodities is determined by its certificate."⁹ I made no such assumption in my analysis, as will be shown further. Moreover, the market area served by a common carrier is *limited* by not "determined by" its certificate.

5. In a footnote Smykay says: "This New England Study appears to be oriented to a determination of the relative competitive position of New England to other regions of the economy" and that if transport costs are reduced they "will redound to the benefit of all areas and New England will still be faced with the same relative transport cost differentials."¹⁰ Both statements are incorrect. The research report had two objectives: one, to ascertain the proportions of the highway transport industry in New England; two, to analyze the economic performance of the industry in its present setting of regulation. (Cf., p. 23 of report.)

Curiously, Smykay contradicts his own contention about the neutrality of changes in transport cost by citing location theorists who have "all pointed out quite clearly that increases in transport costs are a powerful

factor which bring (sic) about decentralization of industry. Reduction in transport costs will only enhance centralization . . ."¹¹ The inconsistency here need not be dwelt upon. Although the New England report which occupies Smykay's attention did not concern itself with transport costs of New England producers vis a vis other regions, another report in the New England series pointed out that as the national market slips westward New England finds that its stake in improved transportation is continuously rising.¹² Clearly, reduced transport costs would enable low cost New England producers to extend their markets.

The Analytical Technique

The gist of Smykay's criticism of my analytical technique can be summed up about as follows: "Authorities" agree that statistical measurement of cost and price in relation to size of firm must be done only by placing each firm in its relevant market. Smykay illustrates his criticism by showing that carriers having different portions of truckload and less-than-truckload business may be of the same size yet have different costs per ton mile.¹³

The reply to this criticism, which rests in part on the reader's own view of the statistics reproduced below, starts with the strong a priori case against the presence of economies of scale in trucking. The case can be deduced from such considerations inter alia as the number of firms in the industry—probably running as high as 125,000 for the for-hire segments, and the picture of the Interstate Commerce Commission heroically manning the gates against entry into the regulated sector of the industry.

The statistical technique of the New England study assumed that if good sized batches (102 and 65) of firms with some common characteristics (Class I common carriers of commodities generally, operating in, or to and from, New England) were divided into revenue classes containing 10 or more firms the cost figures produced would be significant. (In several classes the number was below ten.) It was recognized that

⁶ *Ibid.*

⁷ Robert A. Nelson, *New England Highway Freight Rates* (Boston: New England Governors' Committee on Public Transportation, 1957); also Arthur Bright and George H. Ellis, *The Economic State of New England* (New Haven: Yale University Press, 1954), Chapter 13.

⁸ *Loc. cit.*

⁹ *Op. cit.*, p. 144.

¹⁰ *Ibid.*

¹¹ *Ibid.*

¹² *Ibid.*

¹³ *Ibid.*

individual carriers are exposed to varying factors which influence cost such as terrain, traffic consist, less-than-truckload to truckload ratio, road congestion, loading facilities, etc. However, it was presumed that these differences would tend to be submerged if the carriers were taken in groups.

Refinements such as reliance on cost per vehicle mile rather than cost per ton mile (contra Smykay) to lessen the influence of load, and summing operating figures for each class to avoid averaging of averages were presumed to heighten the credibility of the results. The figures on average haul and average load insofar as they represent operating characteristics provide a basis for comparing the classes. Reproducing the tables here to which Smykay referred (numbered 5

and 6 as in the original report) seems appropriate.

Two tables which Smykay ignored in his comment may be of interest. In order to "standardize" operating characteristics to the extent statistically possible, the New England report set up two arrays of carriers with similar average hauls and average loads. These are shown here as Tables 9 and 10 as numbered in the report itself.

None of the figures in the four tables show any significant tilt of vehicle mile cost as revenue rises. To maintain in the face of this evidence that there are economies of scale in trucking is to hold that the large carriers included in the analysis were in a *different business* from the small carriers with-

TABLE 5—RELATIONSHIP OF ANNUAL INTERCITY REVENUE TO OTHER OPERATING DATA—102 CARRIERS OF GENERAL FREIGHT DOMICILED IN NEW ENGLAND: 1954

Annual Intercity Revenue in \$1,000's	No. of Carriers	Cost per Vehicle-Mile	Cost per Ton-Mile	Average Haul, Miles	Average Load, Tons
0- 249.....	8	\$.82	\$.158	81	5.2
250- 499.....	26	.75	.174	98	4.3
500- 749.....	22	.81	.077	151	10.5
750- 999.....	17	.72	.083	178	8.6
1,000-1,999.....	19	.72	.107	160	6.7
2,000-9,999.....	10	.79	.095	197	8.3

Source: Robert A. Nelson, "The Economic Structure of the Highway Carrier Industry in New England," *Motor Freight Transport for New England* (Boston: New England Governor's Committee on Public Transportation, 1956).

TABLE 6—RELATIONSHIP OF ANNUAL INTERCITY REVENUE TO OTHER OPERATING DATA—65 CARRIERS OF GENERAL FREIGHT DOMICILED OUTSIDE NEW ENGLAND OPERATING IN NEW ENGLAND: 1954

Annual Intercity Revenue in \$1,000's	No. of Carriers ¹	Cost per Vehicle-Mile	Cost per Ton-Mile	Average Haul, Miles	Average Load, Tons
0- 249....	4	\$.76	\$.107	83	7.1
250- 499....	10	.57	.071	205	7.9
500- 749....	5	.58	.062	174	9.3
750- 999....	7	.59	.059	268	10.0
1,000- 1,999....	9	.76	.068	280	11.2
2,000- 9,999....	16	.55	.048	486	11.4
10,000-49,999....	13	.52	.047	652	11.0

¹ The total does not add to 65 because annual intercity revenue was inadvertently omitted for one carrier.

Source: See footnote, Table 5.

TABLE 9—RELATIONSHIP OF ANNUAL INTERCITY REVENUES TO OPERATING COSTS—NEW ENGLAND CARRIERS WITH SIMILAR CHARACTERISTICS OF HAUL AND LOAD: 1954¹

Annual Intercity Revenue	Cost per Vehicle-Mile	Average Load	Cost per Ton-Mile	Average Haul
\$ 240,000.....	\$1.04	10.0	\$.104	180-220
430,000.....	.96	9.0	.107	180-220
720,000.....	1.04	9.0	.116	180-220
780,000.....	.64	9.0	.071	180-220
910,000.....	.66	10.0	.066	180-220
970,000.....	.78	8.0	.098	180-220
1,110,000.....	.53	9.0	.059	180-220
1,330,000.....	1.13	10.0	.113	180-220
3,640,000.....	.82	8.0	.102	180-220
9,480,000.....	.79	9.0	.088	180-220

Coefficients of Rank Correlation
Between Annual Intercity Revenue and:

.21

.24

¹ Figures for Average Load and Average Haul were not in published table.

Source: See footnote, Table 5.

TABLE 10—RELATIONSHIP OF ANNUAL INTERCITY REVENUES TO OPERATING COSTS—NON-NEW ENGLAND CARRIERS WITH SIMILAR CHARACTERISTICS OF HAUL AND LOAD: 1954¹

Annual Intercity Revenue	Cost per Vehicle-Mile	Average Load	Cost per Ton-Mile	Average Haul
\$ 1,050,000.....	\$.58	11	\$.053	740
1,880,000.....	.54	14	.039	880
3,150,000.....	.41	13	.032	1,115
3,600,000.....	.27	10	.027	800
7,920,000.....	.52	14	.037	860
8,870,000.....	.38	12	.032	1,156
10,040,000.....	.44	10	.044	760
12,620,000.....	.42	10	.042	720
16,280,000.....	.54	13	.042	850
16,890,000.....	.57	15	.038	980
19,360,000.....	.43	12	.036	1,490
35,670,000.....	.48	11	.044	750

Coefficients of Rank Correlations
Between Annual Intercity Revenue and:

.003

-.16

¹ Figures for Average Load and Average Haul were not in published table.

Source: See footnote, Table 5.

out, however, having different characteristics of average haul and average load. It is difficult to perceive why else cost figures did not decline as the size of firm increased. Taking a cue from Smykay's illustration one might conclude, for example, that large carriers predominated in less-than-truckload business (nonetheless somehow or other holding up their average load figure to par for the industry) but that their cost advantages did not appear, in comparison with the costs of smaller carriers, because less-than-truckload business is in general higher cost. Of course the assumption is reversible. If the larger carriers had economies of scale in less-than-truckload business (that is lower costs than small carriers with the same ratio of less-than-truckload) and thus gravitated in that direction, it follows that the small carriers benefited from diseconomies of scale in primarily truckload business. It can also be concluded that the larger carriers could not have been engaged to a greater extent than the smaller in truckload business or they would have exhibited lower costs. But the supposition that the larger carriers sold in different markets from the smaller is pure speculation and, if it were so, the figures in the tables indicate that economies of scale in some segments of trucking were balanced by diseconomies of scale in others.¹⁴

Smykay has not made a dent in the a priori case against the presence of economies of scale in trucking and his criticism of my statistical technique would be more consistent with his cited authorities if we were dealing with an industry comprised of a handful of firms, viz. steel.

¹⁴ Table 6 shows a rise in average haul correlating with the rise in average revenue. This may derive from the few long haul carriers in 1935 and tight entry restrictions since.

Smykay's article includes also a series of discursive comments about what *might* be the economics of the trucking industry. Although he decries the efforts which have been made to develop cost relationships in the industry, Smykay's final plea is for "more fundamental research oriented not only to statistical cost studies based on implicitly assumed conditions of perfect competition" but also to "certain types of institutional analysis."¹⁵ This writer would appreciate being removed from Smykay's roll of those who implicitly assume conditions of perfect competition in the trucking industry. Aside from the fact that perfect competition is a classroom abstraction, simply the eruption of rate wars indicates that trucking is a few miles down (or up) the rivalry pike from the pole of pure competition.

One paragraph near the end of the article about depreciation in the trucking industry seems particularly unintelligible containing reference to what must be an accounting innovation, namely, "fully depreciated assets."¹⁶ In it Smykay seems to be saying that the industry is plagued by the chronic presence of depreciated equipment utilized by marginal operators and that in fact the industry's high rate of depreciation is an undesirable property. To which we ask, is not a low rate of depreciation a barrier to entry insofar as it is symptomatic of long-term "sunk" capital, and often an ingredient in the recipe for economies of scale?

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¹⁵ *Op. cit.*, p. 148.

¹⁶ *Ibid.*

The Economies of Scale in the Motor Carrier Industry: A Rejoinder

PROFESSOR NELSON'S paper covers a broad range of topics in a relatively short treatment. It therefore is difficult to select those subjects which may properly be treated in a short reply. Of course, my original comment on the Nelson Report suggesting that it was of high professional standard still stands. However, some of his criticisms dealing with my analysis of the report cannot go unanswered.

It was my intent to give a brief review of Professor Nelson's work so that its general nature was understood by the reader. Apparently, the only way out of this dilemma is for each individual to read it for himself and reach his own conclusions. As to the glaring errors, even a casual reading of my article will clearly show some typographical errors which, however, are easily interpreted by any fair-minded reader.

As to "corrections" suggested by Professor Nelson, I leave it to the reader to determine their significance. I cannot pass this section without observing that at least one of the "errors" upon which a "correction" is based refers to "maximum and minimum" rates. Reference to page 16 of the Nelson Report shows that his own committee states:

"In keeping with this suggestion, we feel that the Commission's (I.C.C.) regulatory power should be confined to *maximum and minimum rates*. (Emphasis supplied.) It should not have power to disapprove a rate for the sole reason that its use would threaten the position of some competing carrier, however inefficient. A minimum rate should be defined in terms of the "direct ascertainable costs" of producing the service in question."¹

The paragraph is quoted in its entirety so that further misunderstanding may be minimized. It would indeed appear to be the height of folly if Professor Nelson would condemn the findings of his own committee on this point. But in all logic, this he must do.

The more substantive criticisms by Professor Nelson deal with the heart of the New England Study which is the statistical analysis. Professor Nelson states the issue clearly in his present paper when he describes the methodology employed by him in collecting and analyzing the truck cost data. The first observations on his approach relate to sample size and character. According to Professor Nelson the samples consisted of 102 Class I common carriers of commodities for those carriers domiciled in New England and 65 carriers of Class I carriers of commodities of carriers domiciled outside New England but operating in the territory. Apparently no attempt was made to separate the costs of these carriers according to their New England and non-New England business. This, of course, may very well be impossible to do. The result of not taking this factor into account would result in a mixing of cost characteristics of the carriers studied so that it represents some sort of average cost for the territories and markets served by these carriers. The Interstate Commerce Commission studies of the cost characteristics of motor carriers indicates that there are cost differences in different territories.

According to the cost studies, the line haul out-of-pocket costs per vehicle mile, for example, are found to be \$14.651² for the East-South territory, \$18.438³ for the Eastern Central territory, and \$16.817⁴ for the South Central territory. These are indeed significant differences which are usually attributed to the different transport and market characteristics of the regions. No one, to my knowledge, had indicated that these differences are in any way functionally related to size.

It may be further pointed out that in the original report a tabular presentation of carriers by type of goods hauled is presented.⁵ The listing of carriers by their commodity groupings is labeled *General Commodity, Household Goods, Specialized Commodity* and *Not Specified*. The heading on the statistical tables, again in the original report, is *Carriers of General Freight*. Finally, in his present paper, Professor Nelson states that the sample was based on Class I Common Carriers of Commodities. I assume that Professor Nelson in all three instances meant general commodity carriers as commonly understood. Including all carriers of "Commodities" would result in increasing the population from which the sample was drawn and reducing the sample percentage proportionately.⁶

Professor Nelson, in his present paper, also suggests that carriers may have varying factors affecting costs, such as terrain, traffic consist, less than truckload to truckload ratio (the main point of my article under discussion) road congestion, loading facilities, etc.

Further, it is indeed curious that the committee to which Professor Nelson presented his findings states that it (the committee) did not explore fully the problems of terrain and traffic congestion. Indeed, under the circumstances it will be convenient to "presume" that those factors are adequately represented in the sample. Again to avoid further misunderstanding, the full paragraph of the committee on this point is included:⁷

"It was impossible for this Committee to explore every aspect of motor carrier transport in the New England region. We did not, for example, attempt to explore fully the

¹ *Motor Freight Transport for New England* (Boston, Massachusetts: A Report to the Governors' Conference by the New England Governors' Committee on Public Transportation, October 1956) Report Number 5, p. 16.

² ICC Statement No. 9-58, Washington, D. C., 1958, p. 9.

³ ICC Statement No. 457, Washington, D. C., 1958, p. 10.

⁴ ICC Statement No. 9-58, Washington, D. C., 1948, p. 10.

⁵ *Op. cit.*, pp. 26, 27.

⁶ *Op. cit.*, p. 27.

⁷ *Op. cit.*, p. 18.

problems of traffic congestion and difficult terrain mentioned toward the beginning of this report. We have already suggested that these factors do not seem to be very important as contributors to high truck transport cost, certainly much less so than the short-haul factor and the administrative structure under which the industry operates. Nevertheless, having investigated them to only a very limited degree, it is impossible for us to dismiss them as being of no possible importance. It is possible, for example, that a study of public truck terminals or jointly owned terminals might indicate some opportunities to reduce traffic congestion and lower operating costs.³

The validity of this type of assumption may be tested by the freight bill study of Professor Stanley Brewer of the University of Washington.⁸ In the interest of space conservation the percentage ranges of two factors which may affect motor carrier costs are presented from Professor Brewer's study.⁹ The reader then may judge whether an assumption of equal impact upon carriers as a result of these factors may be allowable.

TABLE I—MINIMUMS AS A PERCENTAGE OF TOTAL SHIPMENTS FOR TRAFFIC MOVING BETWEEN DISTRIBUTION CENTERS

1. From Portland to Yakima, Spokane, Everett, Bellingham and Aberdeen and return.
Minimum Percentage... 17.2% (Everett to Portland)
Maximum Percentage... 47.7% (Portland to Aberdeen)
2. From Tacoma to Portland, Seattle, Aberdeen, Spokane and Bellingham and return.
Minimum Percentage... 30.4% (Spokane to Tacoma)
Maximum Percentage... 73.8% (Seattle to Tacoma)
3. From various distribution centers (7) to smaller communities.
Maximum Percentage, Aberdeen to Forks... 42.5%
Minimum Percentage, Bellingham to Bower... 94.7%
4. From various major points (4) to distribution centers.
Minimum Percentage... 25.5% (Portland to Kemuheh)
Maximum Percentage... 56.4% (Tacoma to Townsend)

These data have not been selected at random but rather each item was chosen in such a way as to indicate the range of each variable

⁸ Stanley H. Brewer, *The Utilization of Motor Common Carriers of General Freight in Distribution Patterns* (Seattle, Washington: Bureau of Business Research, University of Washington, 1957).

⁹ Table I is derived from data appearing on pp. 143-146 and Table II from data on pp. 148-150 of the Brewer study.

TABLE II—AVERAGE WEIGHTS OF INBOUND AND OUTBOUND SHIPMENTS FOR VARIOUS PAIRED POINTS, EXPRESSED ON A RATIO OF SMALLEST AVERAGE SIZE TO LARGEST AVERAGE SIZE FOR EACH PAIR OF POINTS

	Average Weights	Ratio of Larger to Smaller Average Weight
Tacoma to Portland.....	725.2	
Portland to Tacoma.....	1685.9	2.3
Spokane to Portland.....	5285.5	
Portland to Spokane.....	1074.1	3.1
Bellingham to Everett.....	861.0	
Everett to Bellingham.....	566.5	1.5
Spokane to Seattle.....	3921.1	
Seattle to Spokane.....	895.7	4.4
Seattle to Aberdeen.....	375.3	
Aberdeen to Seattle.....	439.7	1.2
Portland to Yakima.....	532.5	
Yakima to Portland.....	7815.6	14.7
Yakima to Seattle.....	2970.0	
Seattle to Yakima.....	530.7	5.6
Portland to Bellingham.....	655.5	
Bellingham to Portland.....	6250.0	9.5

which will affect costs. In both elements extreme variability is apparent. In the light of these variances, an assumption of average effect within a single sample may indeed take on heroic proportions. However, it also simplifies the statistical problems of analysis.

In summary, I again state that Professor Nelson has made a real contribution to the advancement of knowledge of the trucking section of the motor carrier industry. I suspect that the area of agreement may be greater than that of our disagreements. But I am sure that Professor Nelson will allow me the privilege of criticism of those portions of his report with which I may disagree.

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The Strength and Weakness of Western Housing Markets: A Reply†

IN THE November 1958 issue of this magazine Douglas Cannon evaluates the strengths and weaknesses of western housing markets for the purpose of substantiating his thesis that growth in the markets is of "such speculative dimensions and so dynamic in character that, without prudent management and the exercise of self-restraint, business entrepreneurs run the risk of over-supplying the West's markets." He develops his thesis by offering evidence to indicate that the local economy supporting the markets has additional elements in it which could magnify certain inherent and developing weaknesses. His presentation offers arguments on both sides of the question but concludes with warning about the need for increased efficiency in operations, long-range foresight, bold planning and political courage if "sound development and redevelopment of urban areas of the West are to be achieved."¹ Mr. Cannon is to be commended for attempting to provide a balanced appraisal of one of the most dynamic but suspect housing markets in the United States—that of the eleven states, Hawaii and Alaska. I do not propose to challenge his conclusions but his data and, in doing so, to strengthen the conclusions by additions and further reinterpretation. Perhaps the greatest strength in Mr. Cannon's article is his emphasis on the dynamism and diversity of Western markets. The most significant weakness, in my opinion, is in the data he presents and assumptions he has derived from them. To illustrate my points I shall follow Mr. Cannon's organization and limit my data to the same time period restrictions he faced.

Mr. Cannon's tendency to generalize from limited data and to be somewhat inexact in his treatment of them is personified in his remark that he will discuss the "eleven states west of the Rocky Mountain Divide." There are not eleven states west of the "Rocky Mountain" (i.e., Continental Divide) but

the eleven westernmost states do include the Divide. The physical separations of Alaska and Hawaii as well as completely divergent economic influences affecting them do not warrant their inclusion in the housing markets of the eleven western states and, for that matter, the eleven states do not constitute a proper homogeneous housing market. The confusion produced by the geographical errors is compounded by the over-frequent references to California or sections of California as examples of what is happening in the western housing markets. California does account for approximately fifteen percent of the national housing market² but is hardly representative of housing activities in such areas as Oregon, Washington, and Idaho, for instance. Nor is the confusion reduced by comparisons which dart from national markets, to unidentified eastern area markets, to northeast United States areas and back to national markets. A comparison of California with selected national and eastern data would present more convincing evidence of some of the trends Mr. Cannon seeks to highlight.

However, here are point-by-point comparisons to provide more specific examples of the sources of weaknesses:

(1) Migration may have accounted for the great increases in population in the west in past years but natural increases are accounting for a constantly greater proportion of increase each year. For instance, in August 1957 the California population increased daily at the rate of 1,560 new civilian residents of which 600 were natural increases. Recent projections of population (December 1958) as reported by the Security-First National Bank indicate that in the California metropolitan areas net in-migration will account for a gradually diminishing portion of the growth.³ Thus, future population growth is not dependent upon in-migration to the degree which has been customary in the past.

¹ California Savings and Loan League, *California Savings and Housing Data Book* (1958), Table 8, p. 10.

² Security-First National Bank, Los Angeles, *Monthly Summary of Business Conditions in Southern California*, December 1958. The population analysis reported was prepared by a group of population analysts and research specialists from various public utility concerns, financial institutions, research organizations, planning commissions, state agencies, etc., after six months' study.

† Douglas Cannon, author of the article on which this reply is based, was given the opportunity to rejoin but was unable to do so at the time because of other commitments. It is possible that a subsequent issue of this journal may include further discussion by Mr. Cannon.

¹ Douglas V. Cannon, "The Strength and Weakness of Western Housing Markets," *Land Economics*, November 1958, pp. 316-328.

(2) Construction expenditures have accounted for a major portion of economic strength not just in the West but in the entire economy and is not a weakness peculiar to the west. The rate of construction in the west is a function of population increases and these are expected to be sustained until at least 1980.

The concern over the high degree of reliance by a community on construction expenditures is a valid one; however, it is important to notice that in October 1957 the west had only four of the twenty leading metropolitan areas in homebuilding in the United States, certainly not a disproportionate number in terms of the housing need,⁴ and this was not an unusual month.

(3) The dependence of the west on military spending for economic stability is, again, not a unique characteristic but common to the national economy. The somewhat higher dependence of the west on this activity when coupled with a high proportion of the voting population may be more of a mixed blessing than a decided weakness. If we assume that economic stability depends upon consumer, business and government spending, then the west is in a favorable position because it has a sufficient voting power and a sufficient interest in production for military needs to produce pressures against cut backs in military spending. This control certainly provides a greater potential for stability than does the reliance of centers such as Detroit on the whims of consumer purchases of automobiles or the dependence of the Gary-Chicago area on steel purchases.

Continuing testimony before Congressional committees and actions by Congress suggest that military spending is not likely to be reduced by any significant amount in the reasonably foreseeable future. Furthermore, because of military spending the west is getting a valuable lead in developing the industries of the new space age almost upon us—atomic power, rocket and jet transportation, transistor telecommunications, computer development—to mention only a few. Finally, as long as it is recognized that significant cutbacks in military spending might trigger economic downturns in the West which could easily permeate the entire

economy, such cutbacks are not likely to occur.

(4) The dependence of home-building on eastern capital can also be looked upon as the dependence of eastern capital on western home-building for investment opportunities. Might not mortgage lending in the east be badly depressed if the west did not need their money? The extra price paid is not necessarily extra in terms of higher prices since home prices and financing in the west are easily competitive with almost any other housing market and not at all high when compared to western incomes. Perhaps rates in the west are not high but rates in the east are too low in comparison with some unspecified "normal." The differences in rates are not as great, however, as Mr. Cannon suggests. For instance, the Federal Housing Administration reported the average interest rate on a conventional first mortgage as of January 1, 1957 to be 5.85% for the West, 5.55% for the Northeast, 5.65% for the North Central.⁵

If the dependence on eastern money is viewed as a limiting factor on growth it might also be considered the necessary leaven to temper western optimism with outside impartial eastern investment judgments. In this way the west is prevented from becoming a captive of its own biases and developing a really dangerous rate of construction.

The argument that western homebuilders are pricing themselves out of the market, if true, can be applied to the entire United States because in 1956 the Boeckh Cost Index on frame residences for representative eastern and western areas was: United States 275, New York 302, Baltimore 266, Boston 277, Chicago 279, Dallas 251, Denver 269, Seattle 254, San Francisco 270, Los Angeles 266.⁶ Who is pricing whom out of what market? In January 1957 the Federal Housing Administration reported average housing costs for the ten most expensive areas in the United States.⁷ Only one western city was included in the list, Reno, Nevada, and it was fifth from the top. Furthermore, a builder reported that a house selling for \$15,000 in Chicago in January 1957 sold for \$11,500 in Denver.⁸

⁵ Federal Housing Administration, *Research and Statistics Release*, October 10, 1958.

⁶ *Engineering News-Record*, October 17, 1957, p. 91.

⁷ *House and Home*, January 1957, p. 126.

⁸ *Ibid.*

⁴ Security-First National Bank, Los Angeles, *Monthly Summary of Business Conditions in Southern California*, October 1957.

(5) The assignment of inflation and overbuilding as a western weakness overlooks the fact that this is another weakness which equally is actually characteristic of almost all areas in the nation. To suggest that inflation in the west is greater because of increases in prices and rents overlooks the basic definitions of inflation. Also, the consistently rising level of building is not necessarily indicative of disastrous "boom" conditions. We do not know, nor has anyone established definitely, what rate of residential or non-residential construction is needed to meet growth requirements and provide necessary building replacements. Inflation and boom are relative and must be related to demand, productive capacity and productivity levels before we can accept Mr. Cannon's conclusions on the subject.

Mr. Cannon also charged that western growth is speculative and concluded by citing high vacancy rates as one of the indicators of this condition. Speculation is more clearly proved by showing that production is beyond absorption capacity and pricing is uneconomic—neither of which were established. The areas cited as having high vacancy rates do have high percentage rates from time to time but this is largely a function of imperfect market information and not speculation. Typically, unsold inventory of completed homes never shows a lag of more than three months at any time. To quote from the unpublished report of the Federal Housing Administration, Los Angeles office for July 1956⁹ . . . "offsetting the period in which completed houses remain on the market is the fact that . . . one out of four houses under construction is sold before completion, reflecting a continuing active market for houses at the right price and the right location." This comment was made with respect to an analysis of vacancy in construction in Los Angeles, Orange, San Bernardino and Riverside Counties. The rates quoted by Mr.

Cannon were typical of the markets in these counties for 1955, 1956, 1957 and 1958 and were not in themselves indicators of speculation.

The western housing market is often a subject of analysis and discussion but not of complete detailed research and analysis.¹⁰ The data presented by Mr. Cannon would have made his closing admonitions more convincing if he had taken advantage of already available data which would have lent historical perspective and more effective comparisons as well as providing a base for the advocated "long-range foresight, bold planning and political courage."

There are certain significant data which Mr. Cannon overlooked and which I would like to add to show the real strengths of the Western areas: (1) Between 1947 and 1954 manufacturing employment in the Pacific states increased by 46.2 percent, in the Mountain states by 34.2 percent as compared to a decline of 3.0 percent in the New England states, 4.1 percent increase in the Middle Atlantic states and 3.4 percent increase in the east North Central, to mention only a few.¹⁰ (2) Value added by manufacture between 1947 and 1956, compared to a United States average of 100, was 192 in California, 79 in Oregon, 139 in Washington, 568 in Nevada, 262 in Arizona, 98 in Idaho as compared to 70 in New York, 84 in Pennsylvania, 91 in Maryland, 85 in Illinois and 97 in Indiana.¹¹ (3) Regional income trends between 1930 and 1956 showed that in 1940 the northeast accounted for well over 39 percent of all personal income in the country but by 1956 this figure had dropped to just below 30 percent. On the other hand, western income represented only slightly more than 11 percent of national personal income in 1930 but had risen to 16 percent by 1956.¹²

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⁹ Federal Housing Administration, Office of Market Analyst, Los Angeles, California (unpublished, mimeographed), *Survey of New Tract Housing in Thirty Selected Localities in the Four Los Angeles Metropolitan Counties*, July 1956.

¹⁰ United States Department of Commerce, *Area Development Bulletin*, Vol. II, No. 4, August-September 1956.

¹¹ *Ibid.*, Vol. IV, No. 4, August-September 1958.

¹² *Ibid.*, Vol. IV, No. 5, October-November 1958.

Book Reviews



Sampling Opinions. By Frederick Stephan and Philip J. McCarthy. New York: John Wiley & Sons, Inc., 1958, pp. 439. \$12.00.

Anyone concerned with or engaging in research dealing with human behavior knows of the problems that stem from sampling. Until perhaps twenty years or so ago, sampling from human populations was, at best, a haphazard business. Yet social scientists were relatively happy in their innocence. As more sophisticated probability designs as well as improved judgment designs came into use, many new problems, formerly either totally unperceived or only dimly ascertained, became painfully apparent.

Shortly after World War II the National Research Council and the Social Science Research Council jointly appointed a committee to deal with sampling and other survey problems. The committee appointed was called the Committee on the Measurement of Opinion, Attitudes, and Consumer Wants. One result of the committee's work was the stimulation of this book. Professors Stephan and McCarthy have not, however, presented a primarily mathematical treatment of sampling. Instead, they have attempted to develop a reference guide to the many problems that come up in the planning and execution of samples with some possible solutions offered, and with attention directed to needed research.

The book is divided into three main parts. First, an introduction of some five chapters is provided. In addition to dealing with the practical value of sampling, and raising some rather broad questions about the subject, an attempt is made to give some idea of the variety of different sampling procedures. Some conceptual models of typical sampling and measurement procedures are suggested, and a final chapter offers some "general conclusions about the dependability, improvement, and operations of sample surveys."

The second part of eight chapters describes the authors' studies of actual surveys. These provide some evidence suggestive of solutions to many sampling problems. Topics such as limitations of check data, comparisons of data from several surveys, the sampling variability of quota samples, and problems of accessibility and cooperation are covered. In addition, a detailed analysis of the field operations of a national quota sample survey is presented.

The third section of nine chapters make up a guide or outline of how to design a complex survey. Some intriguing subjects are covered including some general principles of strategy in drafting designs, the control of deviations from and changes in the design during operations, and finally, a chapter on the appraisal of design performance.

This is certainly a book that anyone with a technical interest in the sampling of human populations should read.

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Principles of Transportation. By Frank H. Mossman and Newton Morton. New York: The Ronald Press, 1957, pp. vi, 510. \$6.50.

This work is designed as a text for use in an introductory course in transportation. The authors have attempted to combine in one volume transport economics and transport administration. While the purpose is praiseworthy, the execution leaves something to be desired. In only two chapters, comprising about 28 pages, is there any attempt to present a basic economic framework with which to tackle the problems facing the transport industries. That the treatment is therefore quite sketchy is only to be expected, but in addition it is often inaccurate. For example, on page 16 is presented the usual figure illustrating the relationship between

short-run and long-run average unit cost curves. In the paragraph discussing this figure, three mis-statements are made: (1) that the long run curve may be "assumed to be the total unit cost curve for the entire industry;" (2) that this curve is "the sum of the average total unit cost curves for each of the companies in the industry;" and (3) that it is "the sum of the lowest points . . . for each firm in the industry."

In the third chapter, dealing with the theory of ratemaking, a similar lack of accuracy is found. On pages 213-14 there is implied agreement with a cited carrier position that rates below variable costs are an appropriate way to secure traffic since some contribution to total costs result. At still another point (p. 211), the authors make the statement that cost of service and value of service are "interdependent in the pricing of carrier services" when what is meant is that they are codetermining.

By far the greatest portion of the book is devoted to the history of transport regulation and development, and the internal administration of carriers. The historical portions are well written, interesting, and factually accurate with an especially good chapter devoted to regulatory standards. Some analysis or critical comment upon these developments in terms of the alternatives from which the regulators and the legislators had to choose would be of help to the beginning student, but this comment was not provided.

Perhaps this volume differs most from others of its genre by giving considerable space to internal carrier organization and functioning. The treatment is almost entirely descriptive and fluctuates between being greatly detailed and being so general in nature as to be almost platitudinous. At times it is reminiscent of the material that is often included in the Introduction to Business

course designed to acquaint freshmen with some basic idea as to the functions of the Sales Department, the Accounting Department, the Market Research Department, the Purchasing Department, etc.

In the section on transport policy the chapter dealing with highway financing has only four paragraphs devoted to an explanation of allocating highway costs to beneficiaries and five paragraphs on the allocation of costs to users. These paragraphs merely list the theories and objections to each with no discussion or evaluation of their usefulness. The only other chapter on policy is couched in general terms with little or no analysis covering the major policy controversies in this vital area. For example, on p. 435 the authors make the statement that "any kind of transportation which cannot support a full allocation of costs and which requires subsidies, direct or indirect, indicates its inability to reflect full economic costs in the rates which it applies," but they do not then make this the basis for recommendations or a discussion of the need for user charges.

In summary, the work has a good deal of extremely valuable and detailed information on carrier internal management functions and problems, but is relatively inadequate on the basic economic and policy issues facing the transport industries. For use as the text in a specialized management course within a transportation major, this deficiency may be of little importance but it does seriously impair the value of the work for a course which in many cases is the only exposure the student has to transportation.

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Publications Received

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